



# Service Manual Gas Electric Refrigerators

## MODELS

2118, 2118SS, 2118BK

2118IM, 2118IMSS, 2118IMBK

2118IMD, 2118SSIMD, 2118IMDBK

Improper installation, adjustment, alteration, service or maintenance can cause personal injury or property damage. Refer to this manual. For assistance or additional information, contact a qualified installer, service agency, or the gas supplier.

**Questions? 1-800-444-7210**

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## Safety

It is not possible to anticipate all of the conceivable ways or conditions under which the refrigerator may be serviced or to provide cautions as to all of the possible hazards that may result. Standard and accepted safety precautions and equipment should be used when working on electrical circuits and handling toxic or flammable materials. Safety goggles and other required protection should be used during any process that can cause material removal, such as when removing a leaking cooling unit and cleaning components.

Read this manual carefully and understand the contents before working on the refrigerator. Be aware of possible safety hazards when you see the safety alert symbol on the refrigerator and in this manual. A signal word follows the safety alert symbol and identifies the danger of the hazard. Carefully read the descriptions of these signal words to fully know their meanings. They are for your safety.



**This** signal word means a hazard, which if ignored, can cause small personal injury or much property damage.



**This** signal word means a hazard, which if ignored, can cause dangerous personal injury, death.



**Norcold** refrigerators are designed and equipped for the use of propane gas only. Do not modify, alter, or equip the refrigerator to any other fuel (natural gas, butane, etc.).

**Incorrect** installation, adjustment, alteration, or maintenance of the refrigerator can cause personal injury, property damage, or both.

**Do** not smoke, light fires, or create sparks when working on propane gas system.

**Propane** gas is highly flammable and explosive. Do not use an open flame for leak testing any of propane gas system components.

**Always** use two wrenches to tighten or loosen propane gas connections. Damaged connections, piping, and components create the potential for gas leaks.

**All** electrical connections and repairs to the refrigerator must comply with all applicable codes. Refer to the certification and code requirements section of the Installation Manual.

**Turn** off AC power and DC power sources before attempting to remove, service, or repair any of the refrigerator's electrical or electronic components. Do not work on live electrical circuits.

**Do** not modify, bypass, or eliminate any of the refrigerator's electrical components, electronic circuits, or propane gas system components.

**Do** not wet or spray liquids on or near electrical outlets, connections or components. Most liquids, including leak detection solutions, are electrically conductive and pose the potential for an electric shock hazard, short electrical components, damage electronic circuits, and/or ignite a fire.

**Do** not use leak test solutions that contain ammonia or chlorine. Ammonia and chlorine degrade copper and brass components.

**The** cooling unit is a sealed system under pressure! Do not try to repair or recharge the cooling unit. Do not bend, drop, weld, drill, puncture, saw, or strike the cooling unit.

**Handle** a leaking cooling unit with extreme caution! The cooling unit contains ammonia, hydrogen, and sodium chromate. Ammonia can cause severe skin and eye burns. Hydrogen is highly flammable, can ignite and burns with an intense flame. Certain chromium compounds, such as sodium chromate, are carcinogenic.

**Do** not use extension cords. Do not remove the grounding prong from the refrigerator AC power cord. Do not use a two prong adapter to connect the refrigerator to the AC outlet.

**Do** not over-fuse electrical circuits. Use specified fuses and AWG wire sizes. The specification section of this manual provides fuse size information. Refer to the Installation Manual for the correct AWG wire size specifications.

**Prevent** child entrapment! Before disposing of the refrigerator, remove all doors and fasten all shelves with retainers.

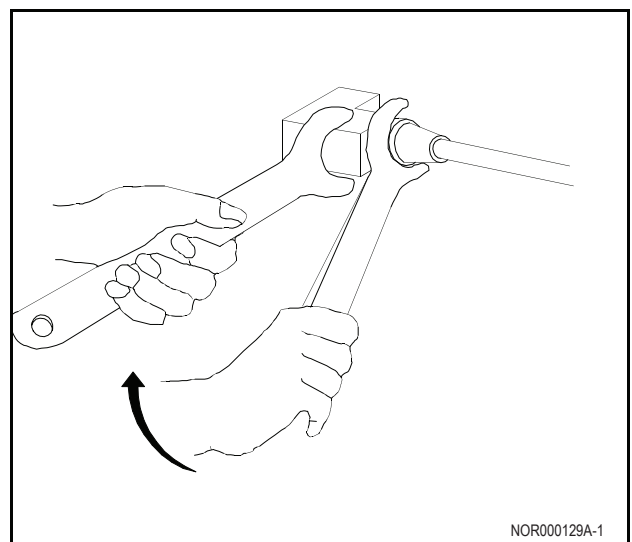
**Make** sure all hardware such as hinges and fasteners (retaining screws, etc.), are properly fastened.

**Obey** the instructions in this manual with regard to intake and exhaust venting specifications.

**Do** not install the refrigerator directly on carpet. Put the refrigerator on a metal or wood panel that extends the full width and depth of the refrigerator.



**Some** of the refrigerator's metal components have sharp corners and edges. Wear hand protection, such as cut resistant gloves, and exercise extreme care when handling the refrigerator.



NOR000129A-1

Fig. 1 - Double-wrenching gas fittings

## Introduction


### About This Manual

This service manual provides maintenance, diagnostic, and repair information for **NORCOLD**® 2118, 2118IM, 2118IMD Series gas absorption refrigerators. It is a reference tool designed for technicians who are knowledgeable in the theory and operation of gas/electric absorption refrigerators, liquefied petroleum (LP) gas–propane–systems, and AC/DC electrical systems as installed in a variety of recreational vehicles (RV).

All information, illustrations, and specifications contained in this publication are based on the latest product information available at the time of publication. **NORCOLD**® reserves the right to make changes at any time without notice.

### Certification and Code Requirements

**NORCOLD**® gas/electric absorption refrigerators are certified under the latest edition of *ANSI Z21.19B* standards for installation in mobile homes or recreational vehicles, and with the Canadian Standards Association *CAN/CGA-1.4-M94*.

Electrical components are  compliant.

### About Installation




Refrigerator installation must conform with the 2118, 2118IM, 2118IMD Series *Installation Manual* for the **NORCOLD**® limited warranty to be in effect. Installation must also comply with applicable local codes and standards set by the relevant certification agency.

### Replacement Parts

Use only authorized **NORCOLD**® replacement parts. Generic parts do not meet **NORCOLD**® specifications for safety, reliability, and performance. The use of unauthorized aftermarket or generic replacement parts voids the refrigerator's limited warranty coverage.

### Technical Assistance

If unable to resolve technical issues using the information provided in this manual, technical support is available through **NORCOLD**® Customer Service Center:

	Telephone:	1-800-444-7210
	Fax:	1-734-769-2332
	World Wide Web:	www.norcold.com.

The following information is required to process technical support requests:

- Refrigerator Model Number
- Refrigerator Serial Number

- Refrigerator Cooling Unit Serial Number
- Recreational Vehicle (RV) Make/Model/Year

### Model Identification

2118, 2118IM, and 2118IMD Series models are shipped from the factory as 2-Way units to operate on propane gas or 120 volts AC electric.

Letter(s) appended to the model number identify factory installed accessories. See Fig. 2.

### Cooling Unit Serial Number

The cooling unit serial number appears on the cooling unit bar code label. The label is affixed to the surface of the cooling unit leveling chamber.

**NOTICE**

**Be** sure to have the cooling unit serial number available if you need technical support on this component.

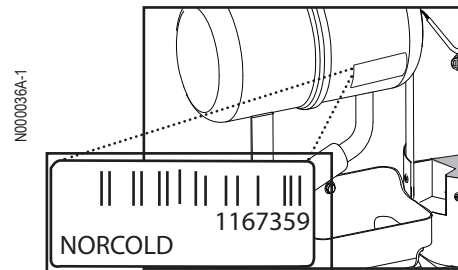


Fig. 2 - Cooling unit bar code label location.

### Refrigerator Model Number

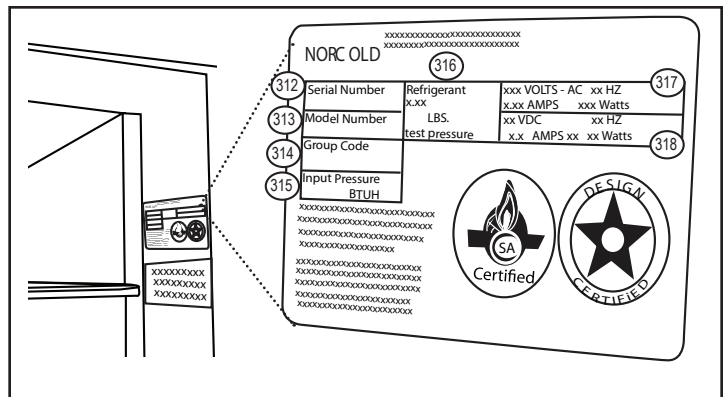


Fig. 3 - Refrigerator information label location

312	Serial Number
313	Model Number
314	Group Code
315	BTU / h
316	Amount of refrigerant in cooling system
317	AC Voltage / Amperage
318	DC Voltage / Amperage

# Specifications

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## Rough Opening Dimensions

(H x W x D)-----68.94 - 69.06 in. x 35.94 - 36.04 x 24.00 - 24.13 in.

## Internal Capacities

Total capacity-----18.18 cu. ft.

Freezer-----5.92 cu. ft.

Fresh food compartment-----12.57 cu. ft.

## Controls

Type----- Electronic with built-in self diagnostic

ON/OFF, MODE, TEMP SET switches----- LCD assembly with flush push buttons

Temperature setting range----- 1 = cold through 9 = coldest

Temperature / defrost sensing services----- Thermistors

Fresh food thermistor----- Located on 2nd fin from the right

Fans thermistor----- Located at rear of refrigerator on left most condenser fin

## DC Power

Electronic controls voltage requirement----- 10.5 to 15.4 VDC

Fuse-power board----- Automotive Blade, Type APR-5A-Tan

## DC Current Draw at nominal 12 VDC

Divider heater-----0.275 A\*

Flapper heater-----0.417 A\*

Perimeter heater-----0.275 A\*

Interior light-----0.500 A\*

Gas valve-----0.146 A\*

External ventilation fans (2 at condenser)----- 0.430 A @ 12VDC - 2/29/2016 and before (per fan)\*

-----0.277@ 12VDC - 3/1/2016 and after (per fan)\*

External ventilation fan (1 at absorber)-----0.140 A\*

Ice maker water line heater (IM models only)-----0.167 A\*

Ice maker water line heater (IMD models only)-----1.250 A\*

Dispenser water line heater (IMD models only)-----0.167 A\*

Dispenser water valve heater (IMD models only)-----0.458 A\*

## AC power

AC input voltage requirements----- 108 to 132 VAC

Fuse-power board-----AGC Series, 8A, Fast Acting, Glass Tube (1/4 in. x 1-1/4 in.)

## AC Current Draw

Fresh food blower----- 140 mA

Freezer blower----- 200 mA

AC heaters (2)----- 300 W, 2.5 A (per heater)

AC heater resistance-----46.0  $\Omega$  to 51.0  $\Omega$  (per heater)

Ice maker (IM models only)-----180W at 115 VAC

Ice maker water valve (IM models only)-----0.210 A\*\*

Ice maker water valve (IMD models only)-----0.145 A\*\*

## Propane gas

Operating pressure----- 10.5 - 11.5 inch w.c.

Burner rating (8-slot burner / LP22 orifice)----- 3000 Btu/h at 11 inch w.c.

Burner orifice size----- LP22

Flame sensing----- Electronic through spark sense electrode

Electrode tip-to-burner gap----- 1/8 to 3/16 inch

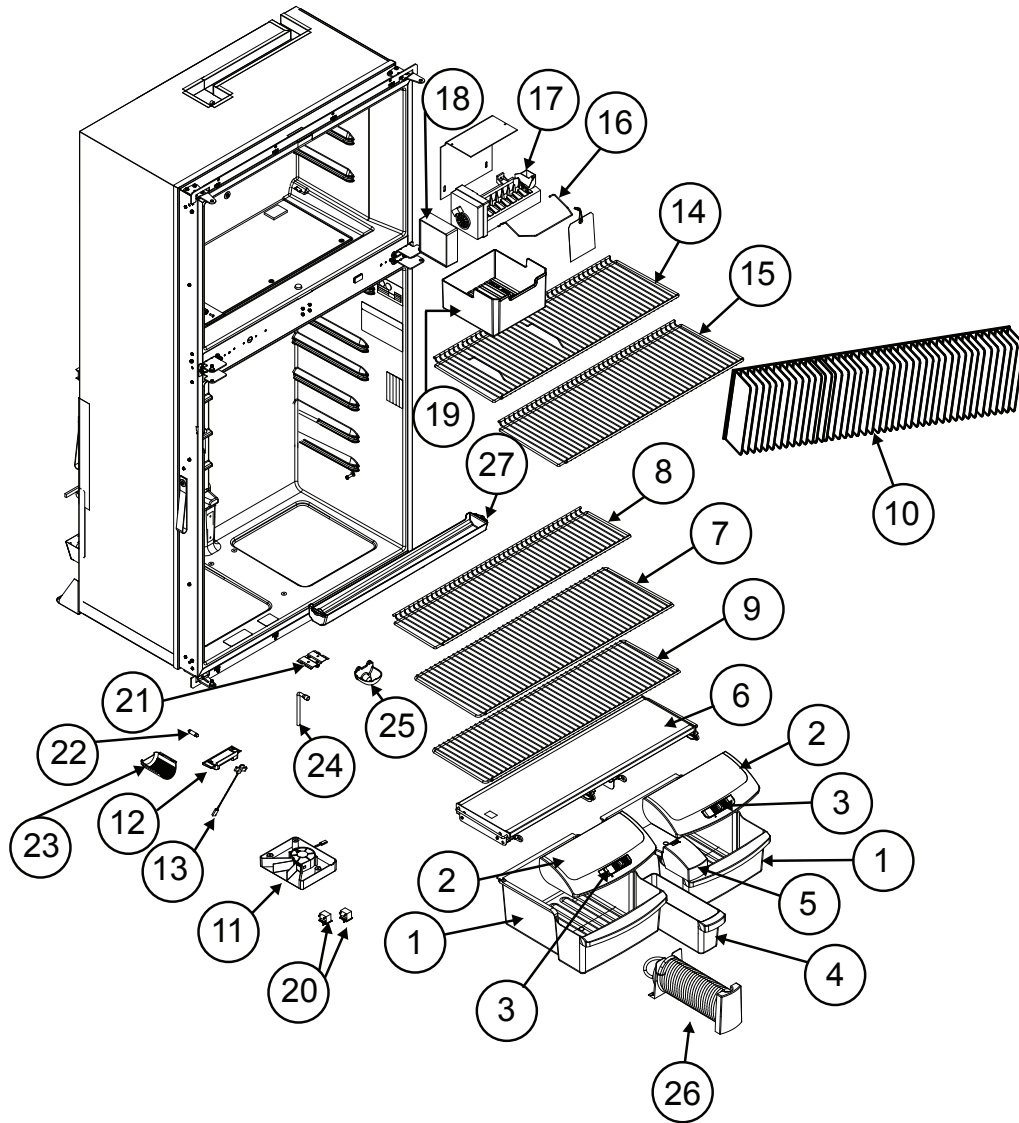
## Off-level operating limits

Side-to-side-----3 degrees-maximum

Front-to-back-----6 degrees-maximum

\* = Calculated, \*\* = Actual

# Exploded View

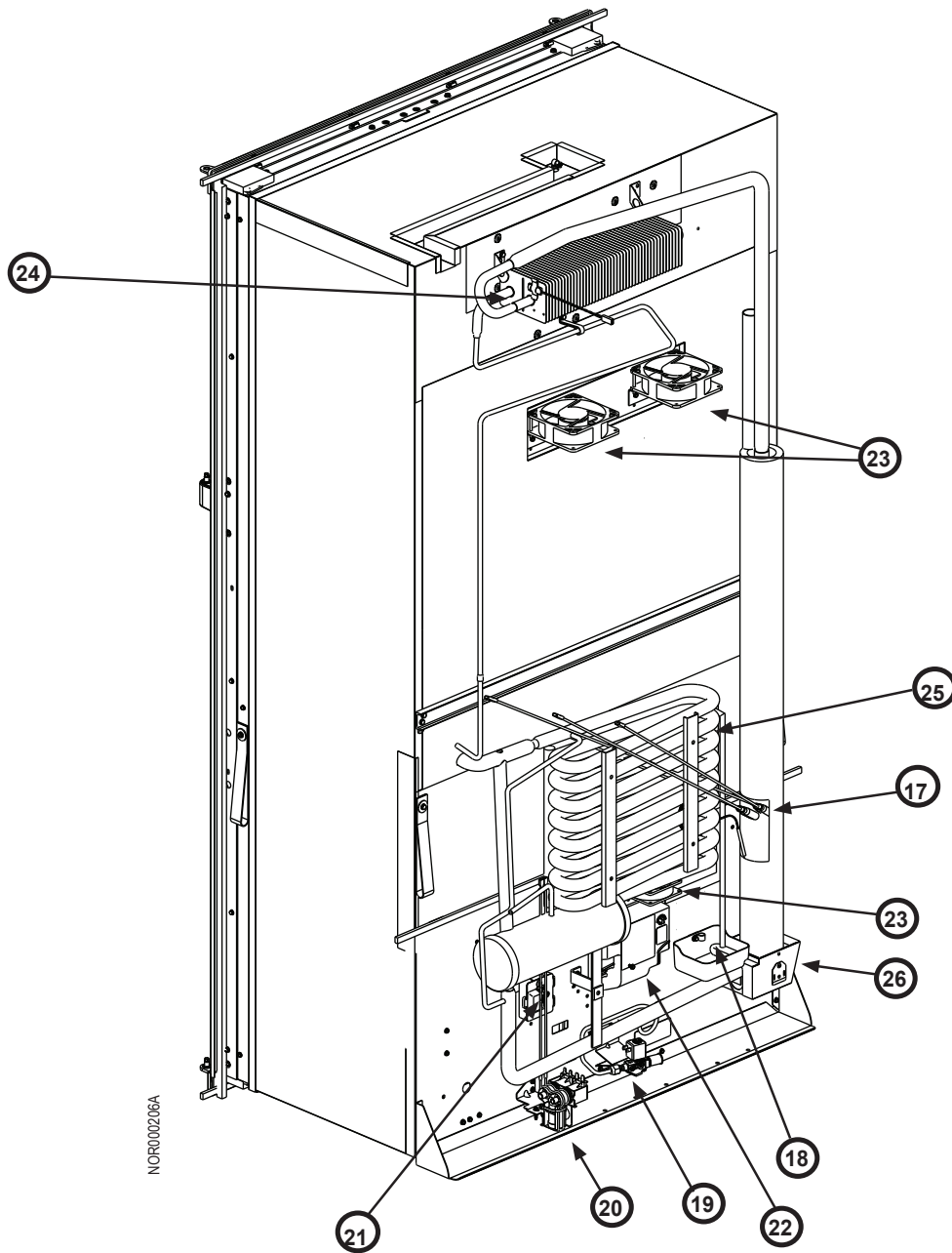


NOR000250A

**Fig. 4 - Exploded front view**

No.	Description
1	Crisper
2	Crisper Lid
3	Crisper Lid Vent
4	Beverage Bin
5	Beverage Bin Cover
6	Crisper Cover Assembly
7	Middle Wire Shelf
8	Top Wire Shelf
9	Full wire Shelf
10	Fin Assembly
11	Blower Assembly
12	Guide Block
13	Thermistor

14	Freezer Wire Shelf With Hump
15	Freezer Wire Shelf
16	Ice Maker Shutoff Arm
17	Ice Maker
18	Ice Maker Cover
19	Crisper Bin
20	Light Switch
21	Lamp Bracket Assembly
22	Light Bulb
23	Light Cover
24	Drip Hose
25	Drip Cup
26	Dispenser Reel Assembly
27	Drip Tray



**Fig. 5 - Exploded rear view**

No.	Description
17	AC Heaters
18	Drip Cup
19	Gas Valve
20	Water Valve (IM and D models only - D version shown)
21	Temperature Monitor Control (TMC)
22	Power Board
23	Fans
24	Fan Thermostat
25	Cooling System
26	Burner Box



## General Information

To confirm that installation is adequate, check for:

- Adequate ventilation - refer to "Ventilation Requirements."
- Both gas and electrical components installed and operating in a safe condition.
- Adequate seal between refrigerator mounting flange and cut-out opening.
- Installed on a solid floor (not on carpet) and secured.



**This** refrigerator is not intended to be operated as a free standing unit (i.e. where the products of combustion are not completely isolated from the living area) or installed in such a way as to conflict with these installation instructions. Unapproved installations could result in safety risks or performance problems.

## Ventilation

### Overview



**The** installed unit must be completely isolated from the combustion system of the refrigerator and it must have complete and unrestricted ventilation of the flue exhaust which, in gas mode, can produce carbon monoxide. The breathing of carbon monoxide fumes can cause dizziness, nausea, or in extreme cases, death.

Certified installation needs one lower intake vent and one upper exhaust vent. Install the vents through the side wall of the vehicle exactly as instructed in the Installation Manual. Any other installation method voids both the certification and the factory warranty of the refrigerator.

The bottom of the opening for the lower intake vent, which is also the service access door, must be even with or immediately below the floor level. This allows any leaking propane gas to escape to the outside and not to collect at floor level.

American Gas Association/Canadian Gas Association (AGA/CGA) certification allows the refrigerator to have zero (0) inch minimum clearance at the sides, rear, top, and bottom. While there are no maximum clearances specified for certification, the following maximum clearances are necessary for correct refrigeration:

Bottom	0 inch min.	0 inch max.
Each Side	0 inch min.	1/4 inch max.
Top	0 inch min.	1/4 inch max.
Rear	0 inch min.	1 inch max.

These clearances plus the lower and upper vents cause the natural air draft that is necessary for good refrigeration.

Cooler air goes in through the lower intake vent, goes around the refrigerator coils where it removes the excess heat from the refrigerator components, and goes out through the upper exhaust vent. If this air flow is blocked or decreased, the refrigerator may not cool correctly.

Each NORCOLD model is certified by AGA and CGA for correct ventilation.

## Enclosure

The cabinet that encloses the refrigerator is built by the RV manufacturer. Depending on cabinet depth, height, and width certain baffles may be present when cabinet clearances exceed installation guidelines and specifications.

### Baffles

Baffles prevent hot air buildup "pocketing" between the refrigerator cabinet and the enclosure walls and/or ceiling. An enclosure may be fitted with:

- An absorber baffle and a condenser baffle
- Side baffles [320] (See Fig. 6)
- Vertical top baffle [13]
- Vertical angled baffles
- Box baffle
- Or a combination of any of the above.

For complete detail about any necessary baffle(s), refer to the refrigerator Installation Manual.

### Lower Intake Vent

Ventilation and combustion air flow through the lower intake vent [9] (See Fig. 6), which also serves as the service access or door. The lower intake vent needs to be kept clear of obstructions that may restrict the flow of fresh air into the enclosure.

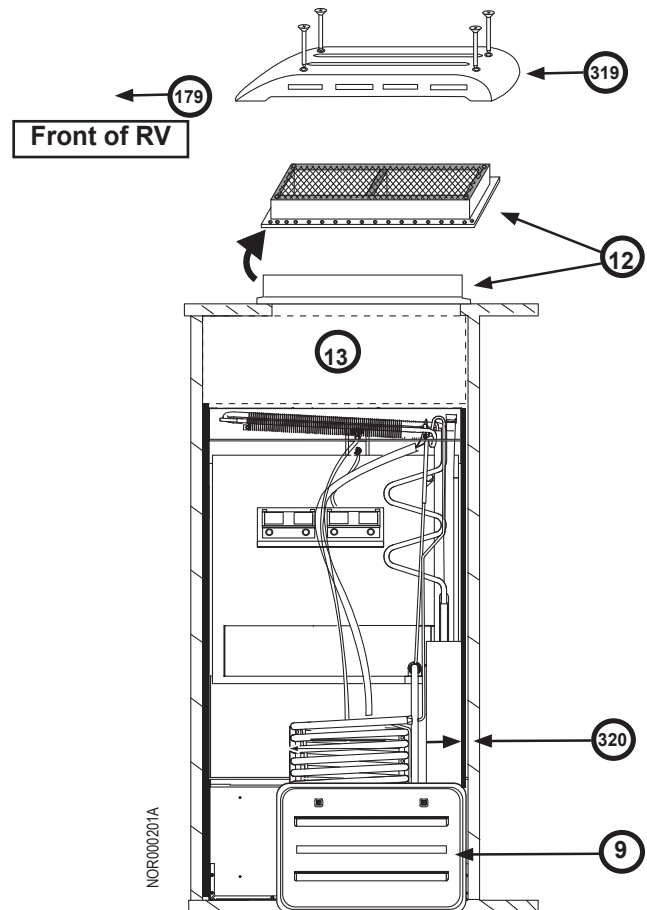


Fig. 6 - Typical roof exhaust venting



## Exhaust Vent

Warm air and combustion gases flow out of the enclosure through the exhaust vent. The exhaust vent can be either a roof exhaust vent [12] or an upper sidewall exhaust vent.

The roof exhaust vent has a non-removable metal mesh screen to prevent leaves, birds, rodents and/or debris from entering the enclosure.

## Roof Cap

The roof cap [319] fits over exhaust vent. The sloped end always faces the front of the RV [179] (See Fig. 6). It is held in place by four 2-1/2" long Phillips head screws.

## Propane Gas Connections

The refrigerator operates on propane gas at a pressure of 10.5 inches Water Column min. to 11.5 inches Water Column max.



**Be** very careful when working on or near the propane gas system.

- Do not smoke, or use an open flame near the propane gas system.
- Do not use an open flame to examine for leaks.
- Do not connect the refrigerator to the propane gas tank without a pressure regulator between them.
- To avoid possible propane gas leaks, always use two wrenches to tighten or loosen the propane gas supply line connections.
- Leaking propane gas can ignite or explode and result in dangerous personal injury or death.



**Do** not allow the leak detecting solution to touch the electrical components. Many liquids are electrically conductive and can cause a shock hazard, electrical shorts, and in some cases fire.

## Leak Test-Detergent

Using a solution of liquid detergent and water:


- Examine the propane gas supply system for leaks: make sure the propane gas supply line and all gas connections have no leaks. Do not use any liquid that contains ammonia.

## Leak Test-Compressed Air

If you use compressed air for the test:

- The pressure of the compressed air at the 3/8 inch male flare fitting of the refrigerator must not be more than 1/2 psig (14

inches Water Column).

- If the pressure of the compressed air is more than 1/2 psig (14 inches Water Column), remove the gas supply line from the 3/8 inch male flare fitting of the refrigerator before the test.
- If the pressure of the compressed air is equal to or less than 1/2 psig (14 inches Water Column), push and hold the ON/OFF button (  ) for one (1) second before the test.

## Electrical Connections

### 120 Volts AC Electrical Connection

The refrigerator is equipped with a three prong plug for protection against shock hazard and must be connected into a recognized three prong attachment receptacle. The free length of cord is 24". The cord must be routed so as not to come in contact with the burner cover, flue pipe or any other component that could damage the cord insulation.



**Do** not remove (cut) grounding plug from the refrigerator AC power cord. Removal of this prong can result in a severe electrical shock, as well as voiding the refrigerator's electrical certification and warranty.

- Verify AC power cord is in a grounded three-prong receptacle.
- Verify receptacle is within easy reach of the lower intake vent.
- Verify power cord does not touch the burner cover, the flue pipe, or any hot component that could damage the insulation of the power cord.

### 12 Volts DC Electrical Connection

The refrigerator controls require 12 volt DC to operate. The minimum control voltage is 10.5 volts DC. The maximum control voltage is 15.4 volts DC.

#### Polarity

The correct polarity of the DC leads to the power board connections is:

- The + 12 volt DC (positive) supply wire from the battery must be connected to the terminal marked "12VDC" on the power board.
- The - 12 volt DC (negative) supply wire from the battery must be connected to the terminal marked "GND" on the power board.

### Power Board Fuses

The DC controls circuit is protected by an Automotive Blade, Type APR-5A-Tan fuse located on power board terminal F1. The AC circuit is protected by an AGC Series, 8A, Fast Acting, Glass Tube (1/4 in. x 1-1/4 in.) fuse located on power board terminal F2.

- See wiring diagram in this manual. Both negative and positive supply wires require 1/4" female quick connect terminals.

- Use a minimum of 18AWG wire for supply wire and maximum 6 A in-line fuse for the DC power supply wires.
- Make sure an in-line fuse is installed on the DC positive wire, as near the battery as possible, between the battery and the terminal block of the refrigerator.



**This** in-line fuse is necessary for added safety, even though the refrigerator has a DC fuse in the control assembly.

### Replacement Fuse Size

AC circuit	AGC Series, Fast Acting, Glass Tube (1/4 in.x 1 -1/4 in.)
DC circuit	Automotive Blade, Type APR-5A-Tan

## Electrical Components

### Fresh Food Compartment Light

The fresh food compartment light is turned on and off by door operated switches. Each switch is located in the top of fresh food compartment above each door.

### Divider Heater

The divider heater is permanently “foamed into” the divider between the freezer compartment and the fresh food compartment. The divider heater warms this area to prevent condensation from forming. Powering on the refrigerator automatically powers on the divider heater. Power to the heater is continuously supplied by the power board.

### 12 Volt DC Fans

12 volt DC fans increase ventilation of the cooling system. Two (2) larger fans are located near the condenser on the rear of the cooling system foam plug. The third smaller fan is located below the absorber coils of the cooling system.

All of the fans are unidirectional. The larger fans each draw 0.430 amps @ 12 volts DC. The smaller fan draws 0.140 amps @ 12 volts DC. Fan resistance through the fan motor circuit is approximately 1.8 ohms.

The fans are controlled by a thermostatic switch.

### Thermostatic Switch

The thermostatic switch [321] is located on the first condenser fin [10] (See Fig. 7). Incoming +12 volt DC [322] is fed through the upper terminal of the thermostatic switch. The +12 volt DC out [323] connects to the lower terminal of the thermostatic switch.

The switch turns the fans on and off. The fans come on when the temperature of the first condenser fin is about 130° F (54.4° C) and turn off at about 115° F (46°C).

## NOTICE

If the vehicle has a roof exhaust vent, you may need to remove the refrigerator from the enclosure to test the thermostatic switch. If the vehicle has an upper side-wall exhaust vent, you are able to test the thermostatic switch

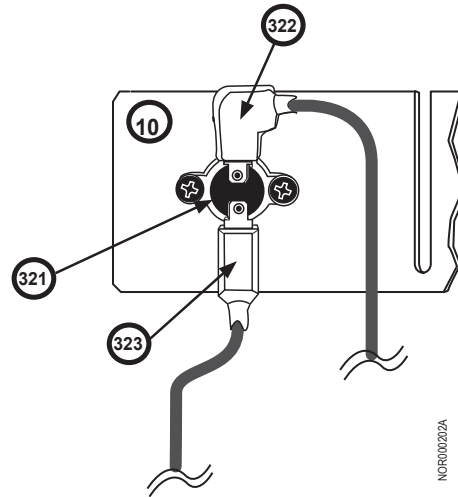


Fig. 7 - Thermostatic switch for fans.

by removing the upper sidewall vent.

### Movable Door Seal

The flapper assembly [324] (See Fig. 8) is hinged onto the left hand door [10] of the fresh food compartment. The flapper assembly provides the vertical sealing surface between the fresh food compartment doors for their inboard gaskets.

The flapper is equipped with a 12 volt DC moisture reduction heater. The heater is supplied power through a wire harness foamed into the door.

The heater is turned on when spring pins, on the hinge side of the door, make contact with the permanent contacts that are in the side of the refrigerator cabinet. The left hand fresh food compartment door must be fully closed to close the connection. Powering on the refrigerator automatically energizes the flapper heater circuit.

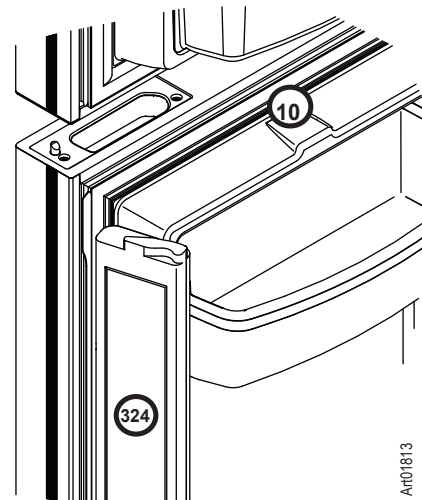


Fig. 8 - Movable door seal.

Verify that the heater is operating by touching the exterior surface of the flapper assembly. The surface of the flapper assembly should be slightly warm to the touch.

If the flapper surface feels cold to the touch or is wet, troubleshoot the heater as follows:

1. Check for any bent, broken or missing spring pins.
2. Check the door alignment. If needed, align the door so that all of the spring pins make full contact with the center of the contacts in the cabinet.
3. Check the heater resistance. Resistance reading should be between 26 ohms and 31 ohms.
4. Replace the flapper assembly if the heater is open, shorted, or if the resistance is not between 26 ohms and 31 ohms.

## Temperature Monitor Control (TMC)

The purpose of the temperature monitor control is to prevent damage to the cooling unit due to an overheating condition in the boiler.

An overheating condition may be caused by one or a combination of the following:

- Insufficient or obstructed ventilation.
- Inadequate installation in enclosure.
- Heat deflector cap blocked by insulation.
- Heat deflector cap jammed against flue opening.
- Exceeding off-level limits.
- Cooling unit blockage.

The temperature monitor control [326] acts as a temperature supervising device (See Fig. 9). It uses a thermocouple, which is positioned on the boiler, to provide the best possible monitoring of temperature.

If the temperature of the boiler rises to an abnormal level, the high temperature monitor opens to prevent the boiler from overheating.

The controls are programmed to detect when the monitor is open. If the switch is open or not connected to power board terminals LIMIT IN and LIMIT OUT, the controls:

- Display fault code "LI" "oP".
- Stop AC and propane gas operation.

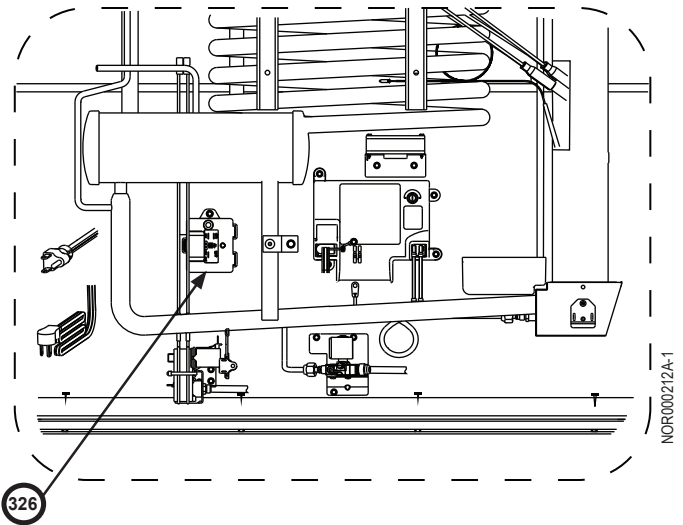


Fig. 9 - Temperature monitor control

## Preventative Maintenance

An annual maintenance check is strongly recommended:

- Leak test the gas lines.
- Check combustion seal; repair or replace, if necessary (Visual check without removing the refrigerator.).
- Inspect or clean the burner or burner orifice.
- Check/adjust the electrode spark gap.
- Insure the spark electrode tip is clean and that the electrode is securely attached to the burner bracket.
- Check/adjust AC and DC voltages and propane gas supply pressure.
- Check the gas safety valve (see procedure in this manual).
- Insure that area around the burner and controls is free of debris, oily rags, etc.
- Inspect the controls, piping and wiring to insure that they are in good condition.

**THESE MAINTENANCE PROCEDURES MUST BE PERFORMED BY A QUALIFIED SERVICE PERSON.**

**NORCOLD CANNOT ACCEPT RESPONSIBILITY FOR REPAIRS, ADJUSTMENT, OR MAINTENANCE PERFORMED BY OTHER THAN A QUALIFIED DEALER OR SERVICE CENTER.**

## Gas Flame Appearance

While in propane gas operation, examine the appearance of the gas flame:


- Put the refrigerator on temperature setting 9 (the coldest temperature setting).
- Open the lower intake vent.

**WARNING** The burner box cover can be hot. Wear gloves to avoid burns.

- Open the burner box door and look at the gas flame:
  - The flame should be a darker blue inside and a lighter blue outside and should be a constant and steady shape.
  - The flame should not be yellow and should not have an erratic and unstable shape.
  - Make sure the flame does not touch the inside of the flue tube.
- Close the burner box door.
- The burner orifice should be cleaned as part of routine maintenance. Follow the Remove and Clean Burner Orifice instructions. If the flame is not at peak performance after it has been cleaned, contact Customer Service.

## Remove and Clean the Burner Orifice

Clean the burner and the burner orifice annually. To clean the burner orifice:

1. Close the valve at the vehicle propane gas tank(s).
2. Push and hold the ON/OFF button (  ) for one (1) second to turn the refrigerator off.
3. Open the lower intake vent.
4. Remove the burner box cover [165] (See Fig. 10) by removing one (1) screw.

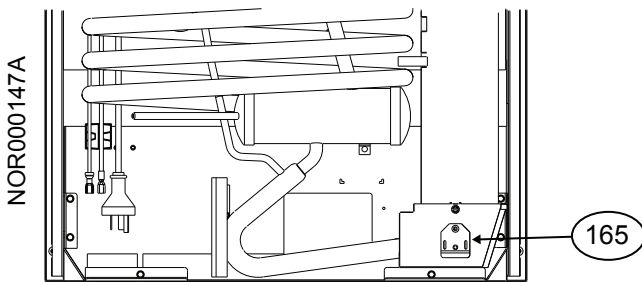
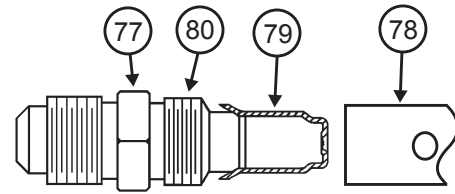


Fig. 10 - Burner Box Location

**WARNING** To avoid possible propane gas leaks, always use two (2) wrenches to loosen and tighten the gas supply line at the 3/8 inch male flare fitting.

5. Remove the flare nut from the orifice assembly [77] (See Fig. 11).



Art 00956

Fig. 11 - Burner/Orifice Assembly

6. Remove the orifice assembly from the burner [78].

**WARNING** When cleaning, do not try to remove the orifice [79] from the orifice adapter [80]. Removal will damage the orifice and can cause a propane gas leak. Leaking propane gas can ignite or explode and result in dangerous personal injury or death. Do not clean the orifice with a pin or other objects.

7. Clean the orifice assembly with alcohol only. Using a wrench, assemble the orifice assembly to the burner. Assemble the flare nut to the orifice assembly. Examine all of the gas connections for leaks.

## Controls

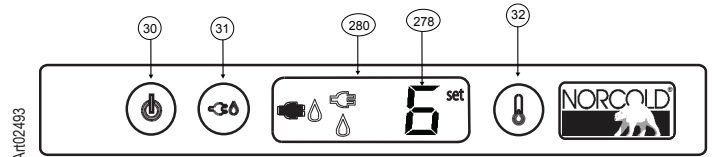


Fig. 12 - Control Locations

No.	Description
30	Power ON / OFF button
31	Mode button
32	Temperature set button
280	LCD (Liquid Crystal Display)
278	Temperature setting

### Power ON / OFF Button

Push and release the Power ON / OFF button [30] (See Fig. 12) to turn on the refrigerator.

Push and hold the Power ON / OFF button for one (1) second to turn off the refrigerator.

## Mode Button

The mode button is manually operated and does not automatically change the operating mode of the refrigerator.

Push and hold the Mode button [31] to scroll through the available modes of operation of the refrigerator, one after the other. When the desired mode indicator comes on, release the Mode button.

Or push and release the Mode button to change the available modes of operation one at a time. There are one (1) Automatic and two (2) Manual Mode of operation.

- **AUTO Mode:** The refrigerator controls automatically select the most efficient energy source that is available.
  - If available, the refrigerator controls select AC electric as the power choice and the Auto mode AC indicator [281] comes on (See Fig. 13).
  - If AC electric is not available, the controls select propane gas as the power choice and the Auto mode propane gas indicator [282] comes on.
- **MANUAL AC mode:** The refrigerator operates using only AC electric as the power source and the Manual mode AC indicator [283] comes on.
- **MANUAL GAS mode:** The refrigerator operates using only propane gas as the power source and the Manual mode gas indicator [284] comes on.

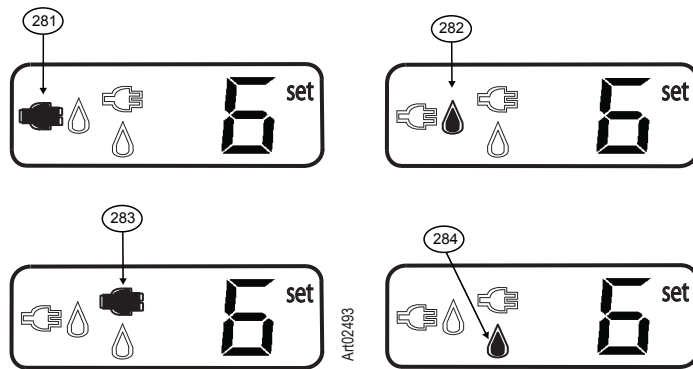


Fig. 13 - Mode Indicators

## Temperature Set Button

Push and hold the TEMPERATURE SET button [32] (See Fig.12) to scroll through temperature settings, one after the other. Release the TEMPERATURE SET button when the desired temperature setting appears.

Or push and release the TEMPERATURE SET button to change the temperature settings, one at a time.

## Temperature Indicator

There are nine (9) temperature settings [278] (See Fig.12).

- Number one (1) is the warmest temperature setting.
- Number nine (9) is the coldest temperature setting.

## Gas Operation

When either AUTO or MANUAL GAS mode is selected, the refrigerator attempts to ignite the propane gas burner. If unable to ignite the burner and to maintain a flame, the fault code "no" "FL" appears in the LCD.

## Modes of Operation

---

### Gas Mode

In AUTO GAS mode and MANUAL GAS mode, the controls energize the solenoid coil to open the gas valve. Spring pressure closes the valve when the controls stop the flow of current to the solenoid coil.

The propane gas burner will cycle in response to the fin temperature to maintain cabinet temperature.

The controls use an electronic sparker to ignite the propane gas at the burner.

### AC Mode

AUTO AC or MANUAL AC mode operation requires 108 to 132 volts AC. Voltage is to be supplied through a 2 pole, 3-wire, 20 Amp grounding type receptacle.

Two (2) 120 volt AC heaters generate the heat load required for AUTO AC and Manual AC operation. Each heater is rated for 300 watts @ 120 volts AC. Each heater has a resistance value of 45 to 51 Ohms at ambient temperature. To replace heaters, the refrigerator must be removed from the enclosure.




**Burn** hazard! Allow canister and heaters to cool before attempting to remove and replace.

The AC electric heaters will cycle in response to the fin temperature to maintain the cabinet temperature.

## Lighting Instructions

---

Before ignition or start up of the refrigerator:

- Be sure the air flow in the lower intake vent, through the refrigerator coils and condenser, and out the upper exhaust vent is not blocked or decreased.
- Be sure there are no combustible materials in or around the refrigerator.
  1. Open the valve at the propane gas storage tank.
  2. Push and release the ON / OFF button (  ).
  3. Push and hold the TEMPERATURE SET button until temperature setting "9" appears.
  4. Push the Mode button until the MANUAL GAS mode indicator comes on.

## Test the Gas Safety Valve

---

To test the gas safety valve:

1. Open the lower intake vent.
2. Remove both white wires from the solenoid of the gas safety valve on the rear of the refrigerator.
3. Insert volt ohm meter leads into the white wires and set the meter to read DC volts.
4. Power ON the refrigerator; select MANUAL GAS mode.
5. Verify that the meter reads approximately 12 volts DC and that the igniter sparks at the burner.
6. After approximately 30 seconds, the voltage measured at the white wires will be 0 volts DC and the sparking at the burner will cease. This means that the gas valve safety circuit is operating correctly. The appropriate error code will appear on the optical display.
7. Reconnect the white wires to the gas valve solenoid. It does not matter which wire is attached to which terminal.
8. Close the lower intake vent.
9. Power OFF the refrigerator.

## Diagnostic Pre checks

---

Prior to performing the diagnostic steps called out in the following pages; first do these important diagnostic pre-checks. In most cases doing so, in and of itself, will remedy the problem at hand. Make sure:

- Door is closed and sealing correctly.
- Unit vents are not blocked.
- Ambient temperature is not unusually high (more than 110° F. / 43° C.)
- Verify control panel works properly. The refrigerator is plugged into a known working AC outlet with a voltage between 108 VAC and 132 VAC.
- Extension cords are not being used to supply AC power to the refrigerator.
- The refrigerator is connected to a known working DC power supply and/or battery supplying between 10.5 VDC and 15.4 VDC.
- Propane gas is available to the refrigerator and is regulated between 10.5 inches and 11.5 inches w.c. (Inches of Water Column).
- The airflow through the intake and exhaust vents is not blocked and the ventilation baffles are constructed correctly.



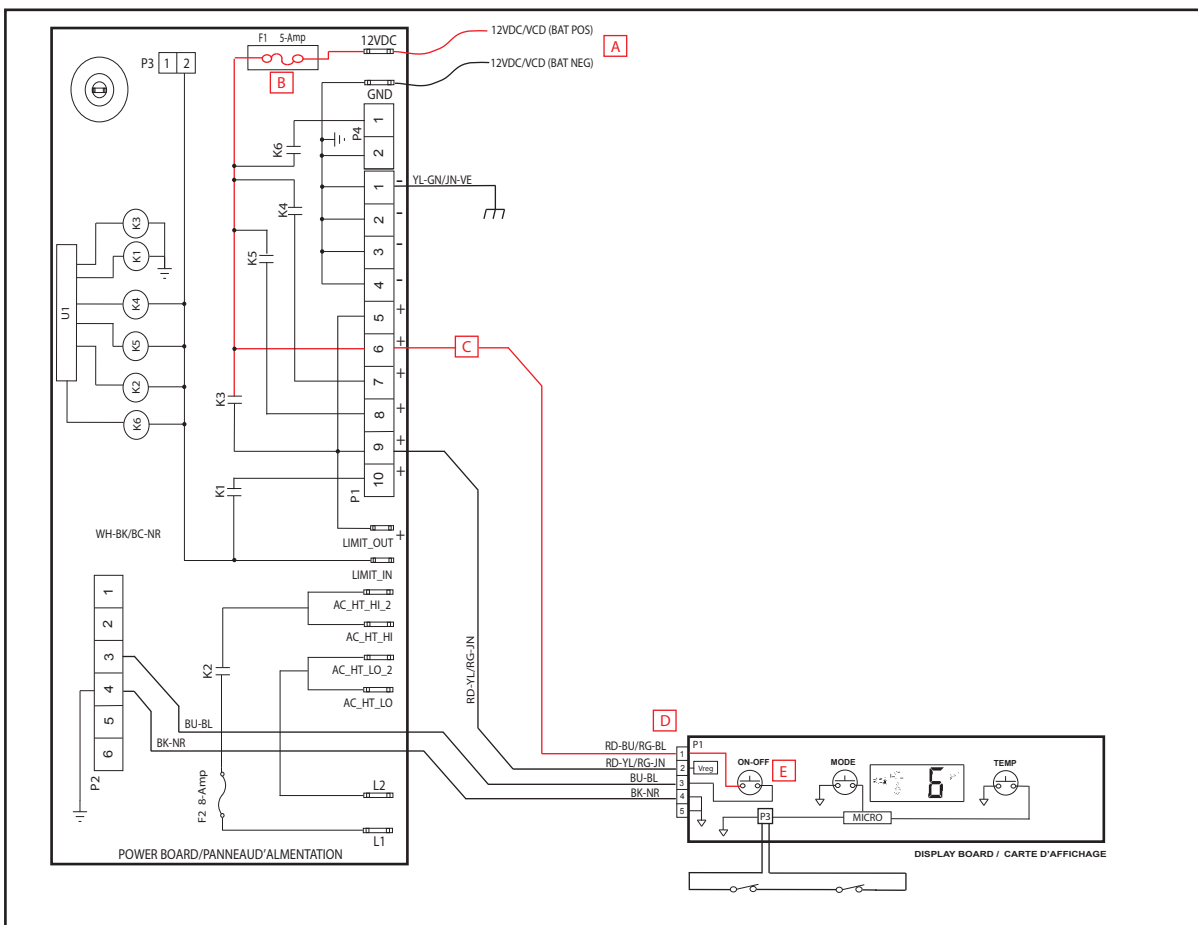
# Fault Codes

## Blank Display

### On-Off Theory of Operation:

Continuous 12-Volts (See Fig.14)

12VDC is supplied to the refrigerator at Power Board terminals 12VDC & GND [A]. This 12VDC travels through the Power Board to fuse F1 [B] and then out to P1-6 [C]. Via the red-blue wire, the 12VDC exits the Power Board and enters the Display Board at P1-1 [D]. The 12VDC travels through the Display Board to one side of the normally open On-Off switch [E]. This 12VDC is referred to as the continuous 12-volts because it is always present at the one side of the On-Off switch when 12VDC power is applied to the refrigerator.



**Fig. 14 - Continuous 12 Volts**

Switched 12-Volts (See Fig. 15):

Pressing the On-Off switch [E] will allow 12VDC to pass through the On-Off switch and back to the Power Board via the blue wire [F] connected between the Display Board at P1-3 [G] and the Power Board at P2-3 [H]. Once the 12VDC reaches the Power Board, a signal is sent out to the coil of relay K3 [J] via the U1 microprocessor. This signal allows the K3 relay to energize thus closing the normally open contacts [K].



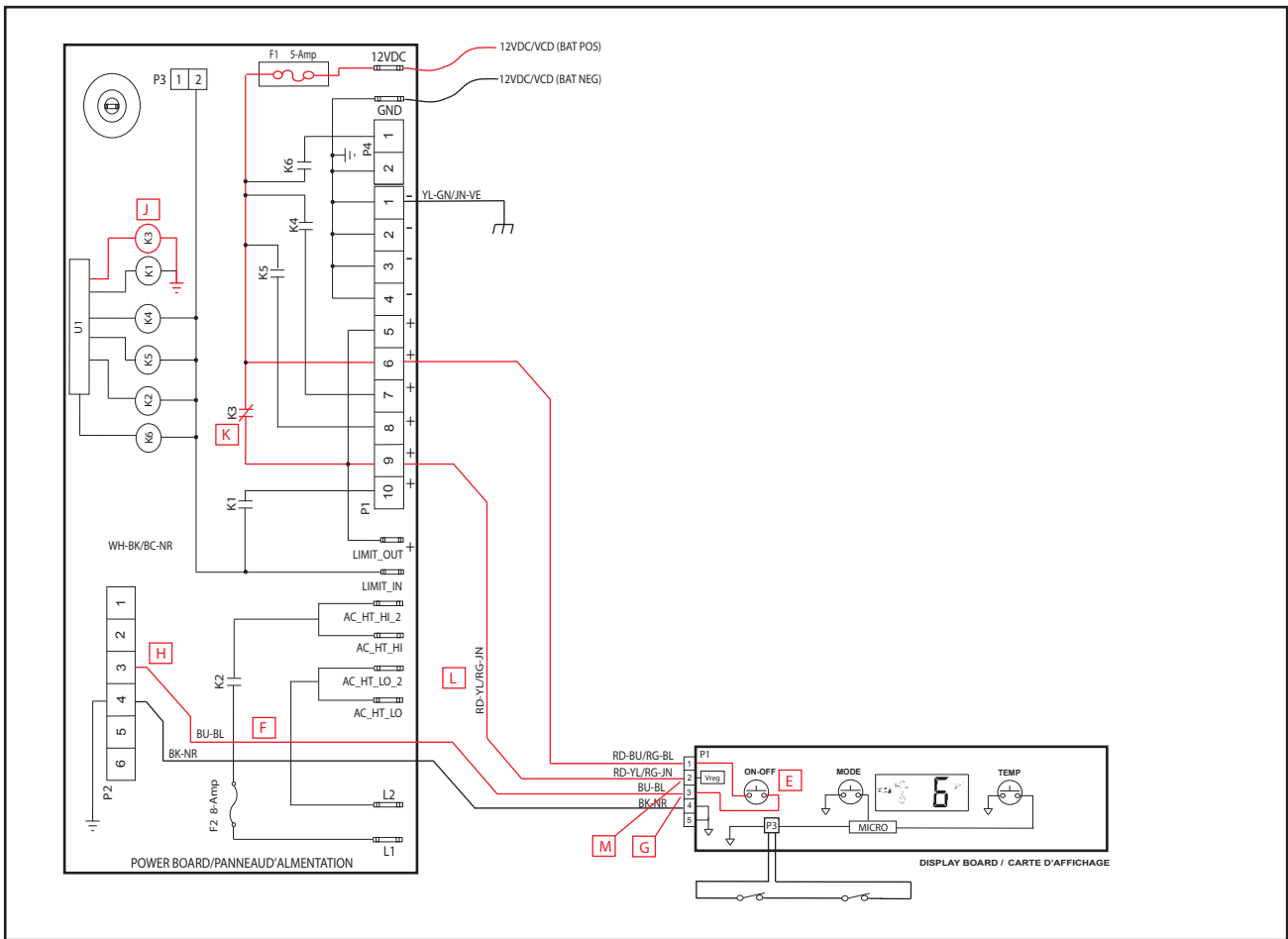


Fig. 15 - Switched 12 Volts

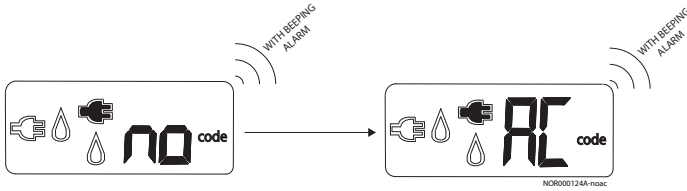
**NOTICE**

**K3** is a latching relay. Once the relay coil is energized the contacts close and remain closed even when the 12VDC is removed, hence the term “latching relay”. With the K3 contacts now closed, 12VDC is passed back to the Display Board via the red-yellow wire [L] between P1-9 of the Power Board and P1-2 [M] of the Display Board. This 12VDC will remain at P1-2 [M] until the latching relay is “un-latched”, which will not take place until the On-Off button is depressed again. This 12VDC is termed the switched 12-volts and is used to power ON the display.

**NOTICE**

**The** On-Off switch [E] is a momentary push-button switch. The operation described above takes place during the “split second” the On-Off button is depressed to power the refrigerator on. If for some reason the display does not turn on, the On-Off button can be pushed and held down to aid in troubleshooting. **EXAMPLE:** Verify you have 12VDC between P1-1 (GND) and P1-6 (continuous 12-volts) of the Power Board. Leave the meters black ground lead connected to P1-1 and move the red positive lead from P1-6 to P2-3 of the Power Board. Have someone press and hold the On-Off button. You should measure 12VDC as long as the On-Off button is held in. When the On-Off button is released you should see the 12VDC go away.

### no AC

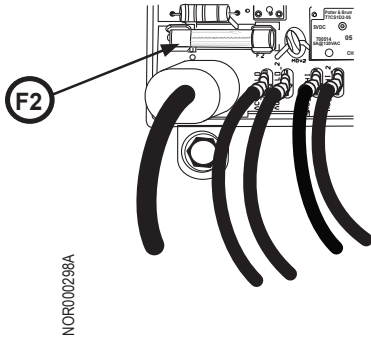


**Meaning:**

The Power Board sensed the refrigerators AC input voltage to be less than 85 volts. This fault, by itself, can only be displayed while operating in the Manual AC Mode. This fault can be displayed in conjunction with other faults while operating in the Auto Mode. For example; no AC followed by no FL (See AUTO mode discussion for further explanation).

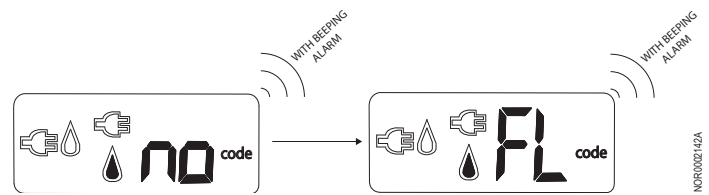
**Verify:**

- The refrigerator is plugged into a known working AC outlet supplying a minimum of 85 VAC.
- The AC power cord is in good operating condition.
- The glass 8-amp fuse (F2) on the Power Board is intact.



- The (F2) fuse holder clips are not loose or broken.
- If above steps all check good, replace power board.

### no FL



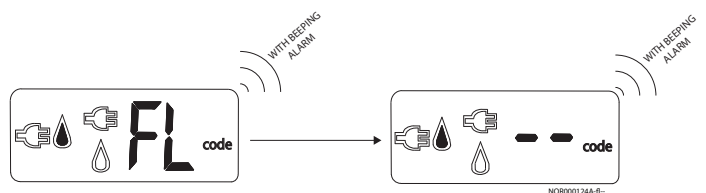
**Meaning:**

The Power Board was not able to detect a flame present at the burner. This fault, by itself, can only be displayed while operating in the Manual Gas Mode. This fault can be displayed in conjunction with other faults while operating in the Auto Mode. For example; no AC followed by no FL.

**Verify:**

- All propane gas shutoff valves (including manual shutoff on gas valve itself) are open.
- Propane Gas pressure at refrigerator is 10.5 in. W.C - 11.5 in. W.C. (water column).
- Propane gas supply line is free of air.
- The burner is clean.
- The electrode-to-burner air gap is between 1/8" and 3/16".
- The spark-sense igniter wire is installed correctly and in good operating condition.
- Gas valve solenoid is in good operating condition (Coil resistance ≈ 74 Ohms to 92 Ohms).
- Wires to the gas valve are connected and in good operating condition.
- Power Board supplies 12 VDC to gas valve when required.
- If the above steps all check good, replace power board.

### FL --

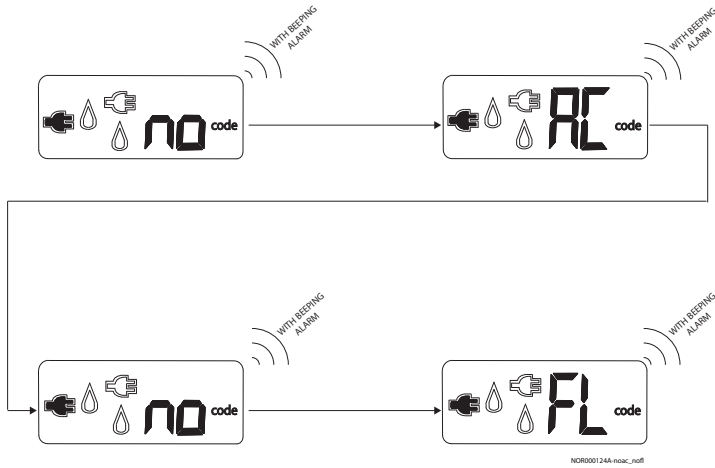


**Meaning:**

The gas valve is "mechanically" stuck open and subsequently the Power Board has sensed a flame present when there should not be. This fault can be displayed in ANY MODE.

- Replace the gas valve.

**no AC, no FL**



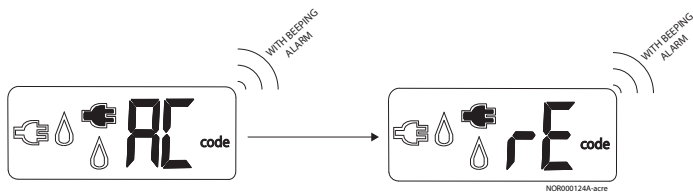
**Meaning:**

This fault is a combination of two separate faults. First, the Power Board sensed the AC input voltage to be less than 85VAC and automatically switched to the LP Gas Mode. Secondly, the Power Board was then unable to detect a flame while operating in the Auto Gas Mode. This fault can only be displayed while operating in the Auto Mode.

**Verify:**

- Follow the “Verify” instructions for the “no AC” fault and “no FL”.
- If all the steps listed under Verify the “no AC” and the “no FL” codes check good, replace power board.

**AC rE**

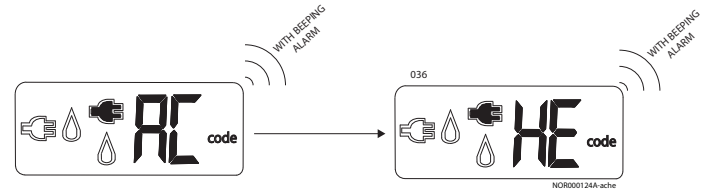


**Meaning:**

The AC heater relay contacts of relay K2, on the Power Board, are stuck closed. This fault can be displayed in ANY MODE.

- Replace the Power Board.

**AC HE**



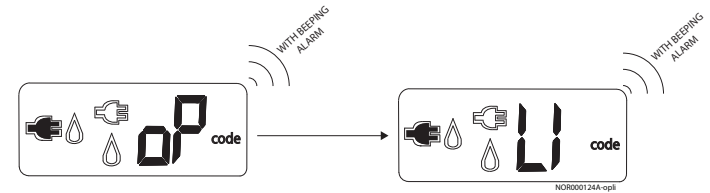
**Meaning:**

The Power Board sensed the AC heater current to be too low. This fault can only be displayed while operating in the Manual AC Mode.

**Verify:**

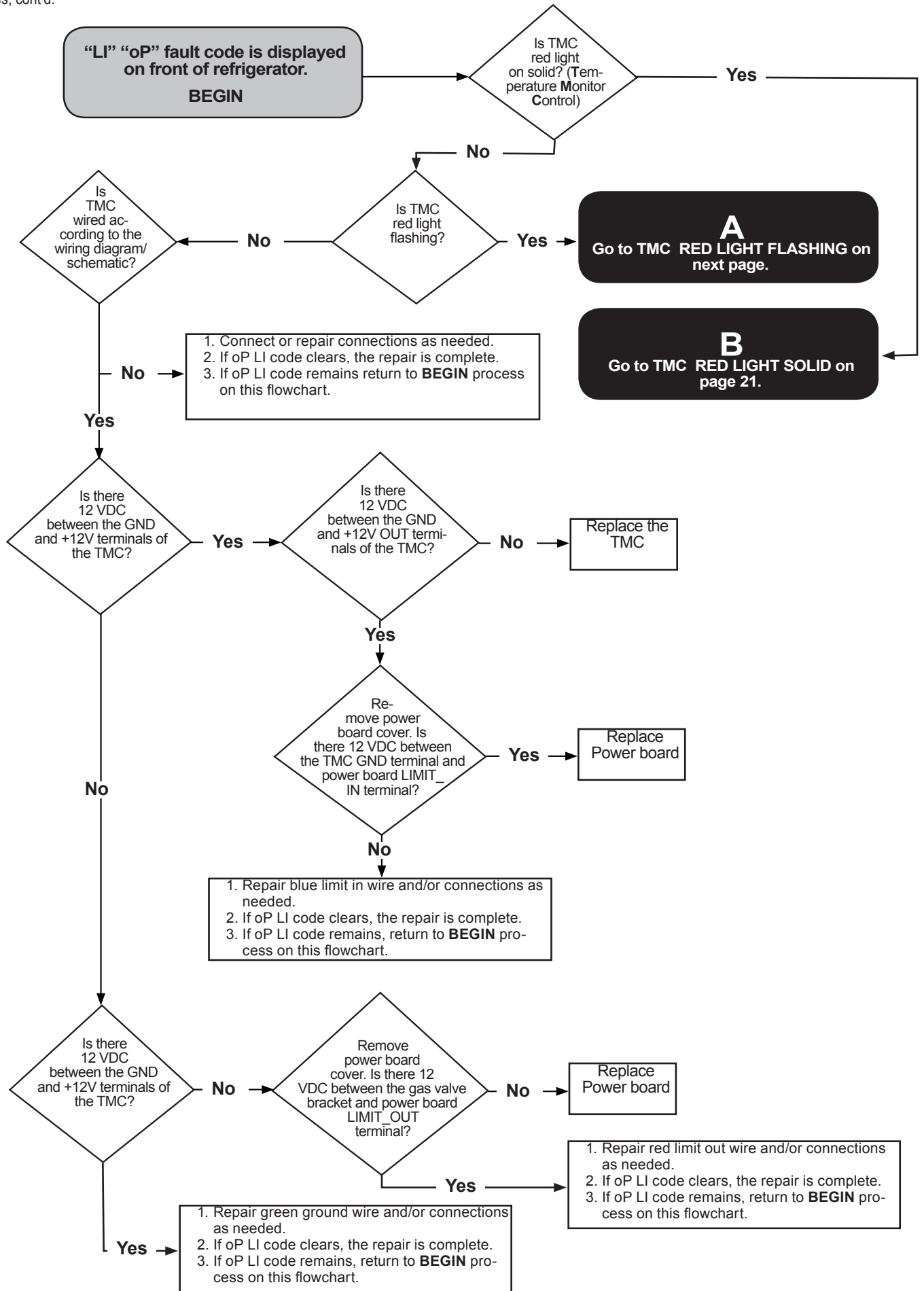
- AC heater connections are in good repair and are properly connected to the Power Board. (Refer to Fig. 17 and Fig. 18 refrigerator wiring diagrams for proper connection.)
- AC heater resistance measures between 45Ω and 51Ω:
  - No - replace AC heater.
- Contact Customer Service for further instructions.

**oP LI**

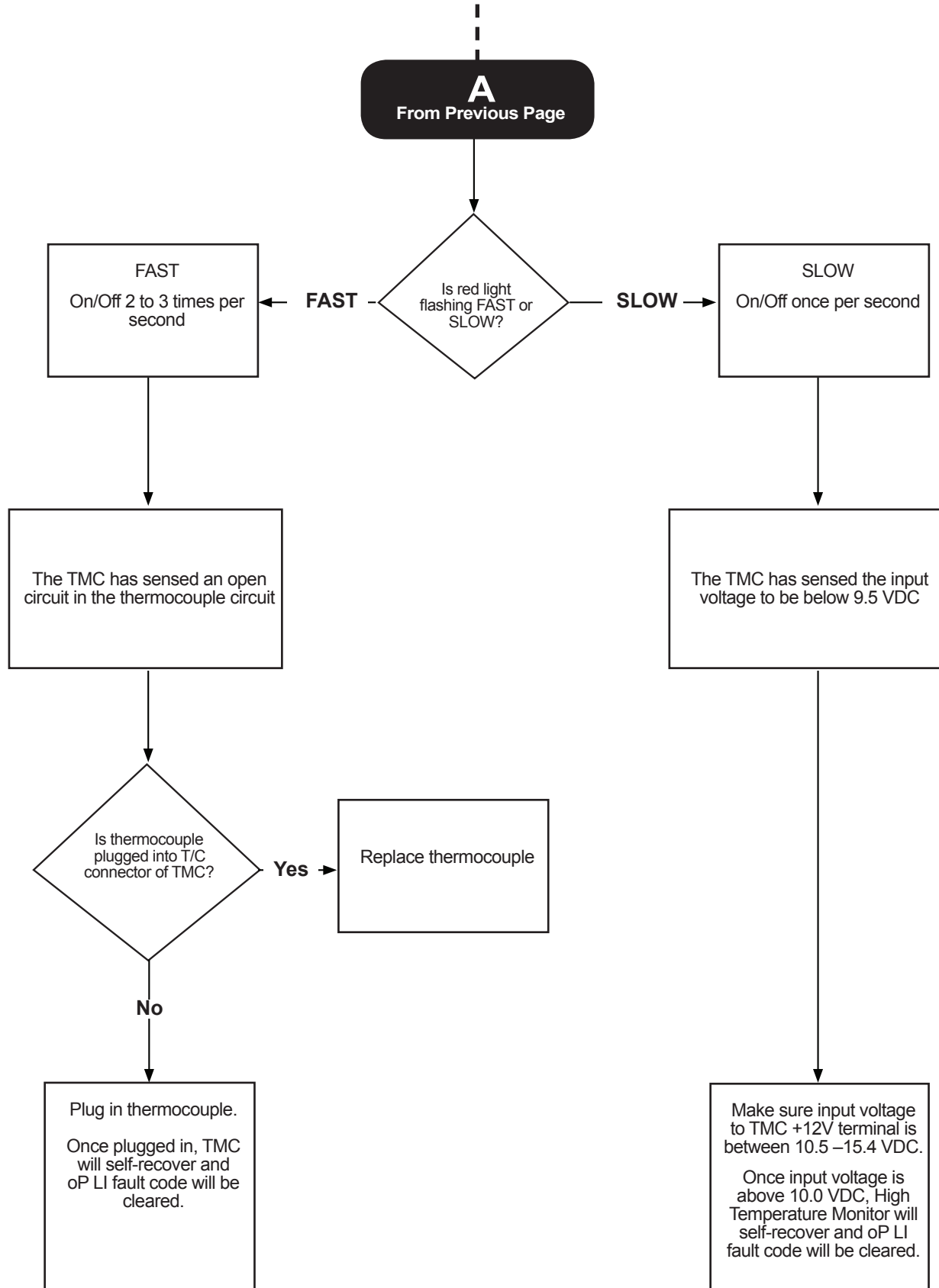


**Meaning:**

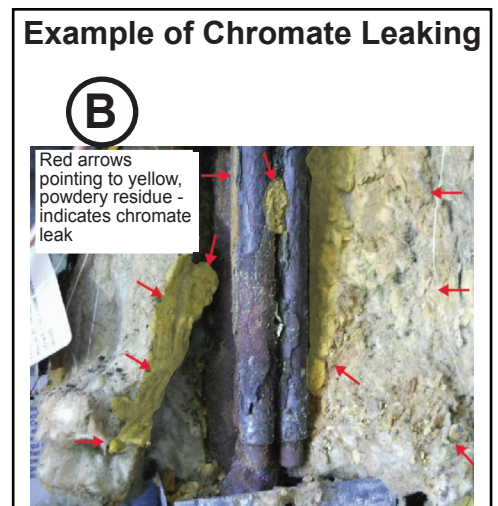
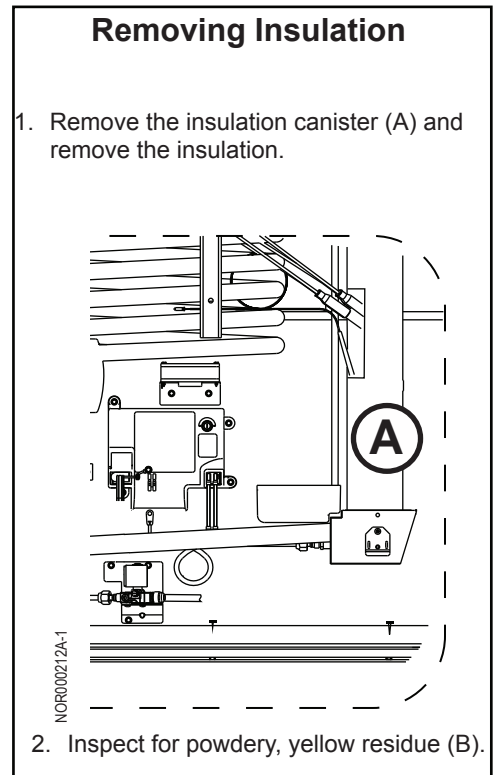
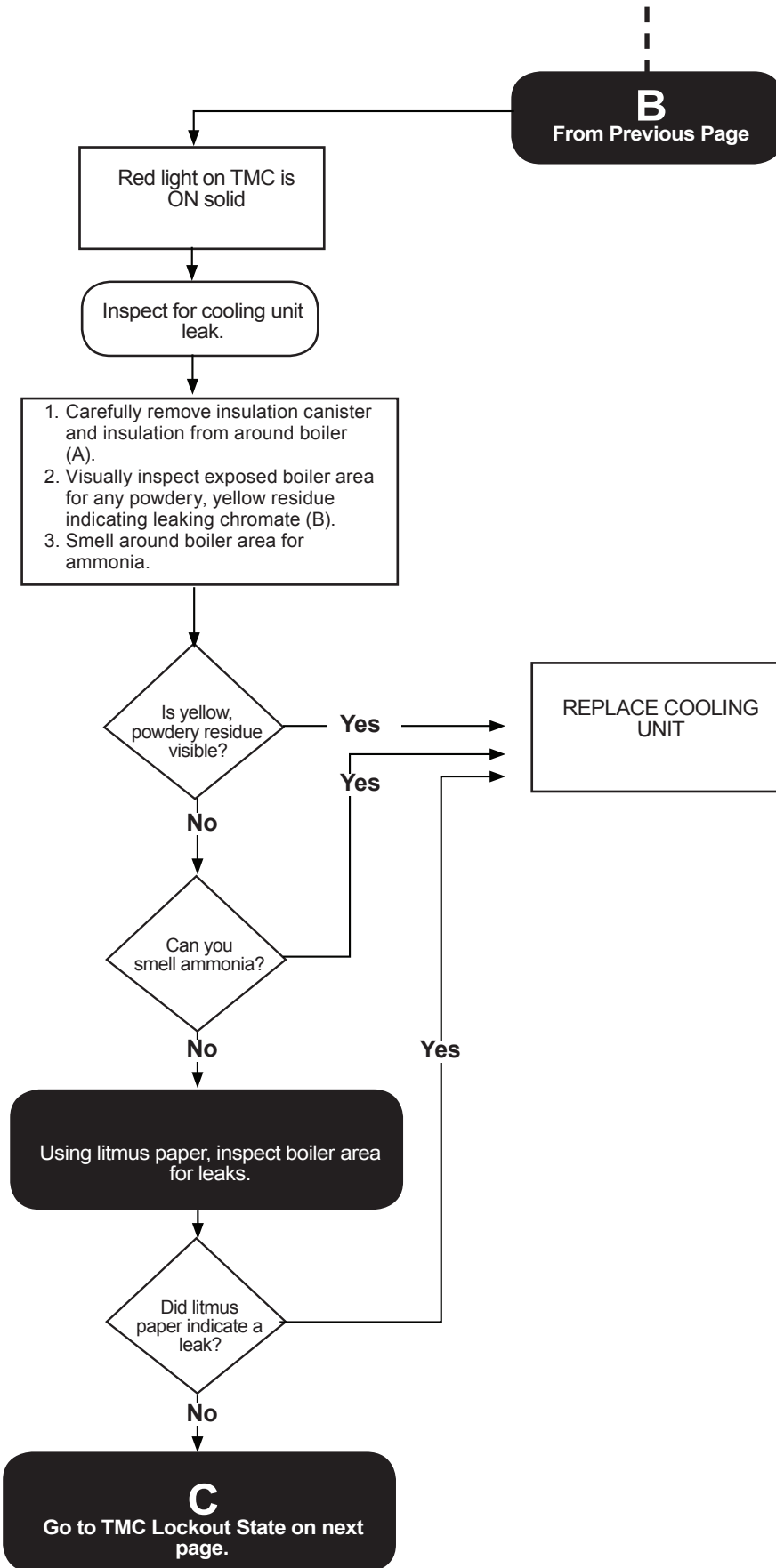
Refer to the flow chart(s) that are on the next four (4) pages.



### Temperature Monitor Control (TMC) - Red Light Flashing



**Temperature Monitor Control (TMC) - Red Light on Solid**



**C**  
From Previous Page

**WARNING** Do not attempt this TMC validation unless you have already followed the "TMC Red Light On Solid" instructions and determined that the cooling unit does not have a leak. Otherwise, there is a serious risk of fire that can result in property damage, personal injury, or death.

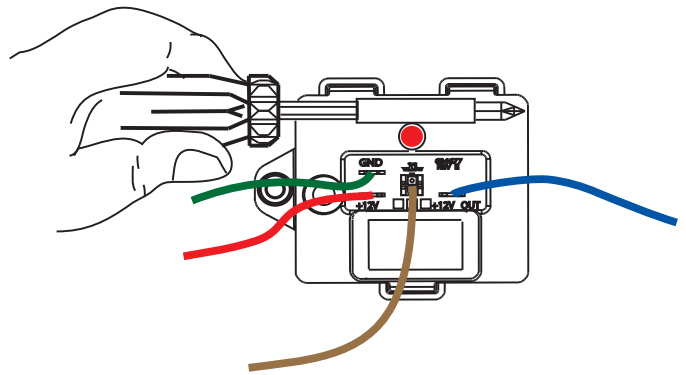
**Clear the Temperature Monitor Control (TMC) Lockout State**

Clear the TMC lockout state (red light ON solid) shown below to validate TMC functionality. The TMC is the black box control portion of the High Temperature Monitor System.

**NOTICE** In order to clear the lockout state (red light ON solid), the conditions below must be met. DO NOT remove the plastic cover of the TMC.

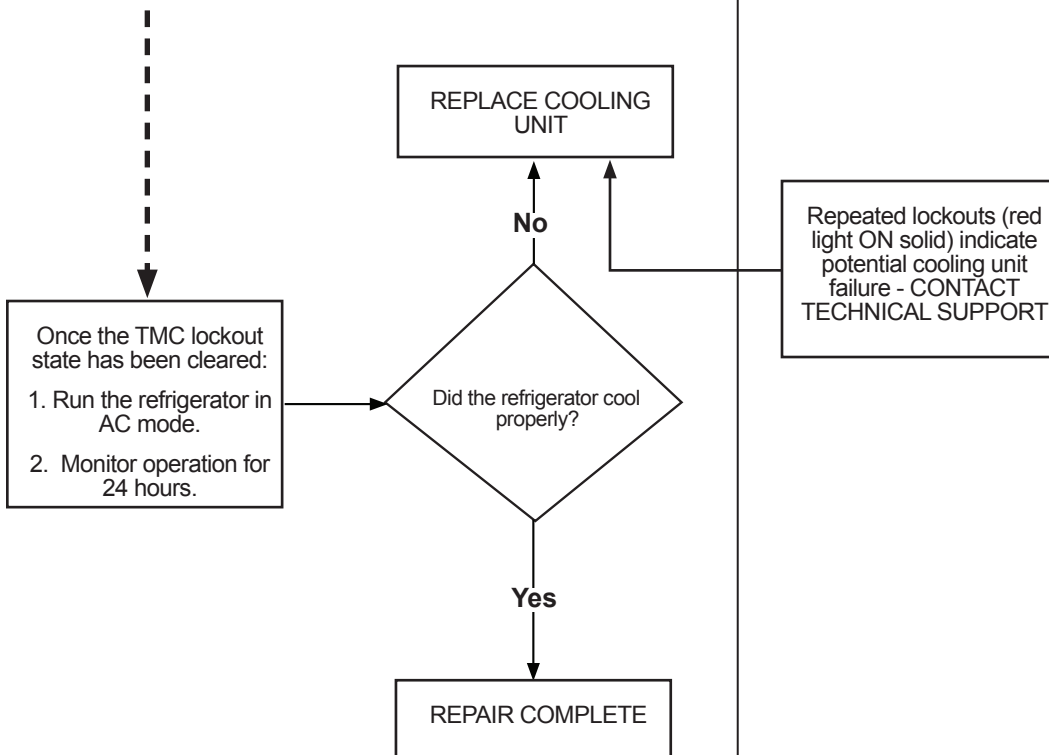
1. Red light of the TMC is ON (solid).
2. The boiler area of the cooling unit (where the thermocouple is mounted) has cooled to less than 250° F.
3. A magnet has been positioned as shown in Fig. 16 for five (5) seconds.

**NOTICE** If lockout state does not clear in five (5) seconds, try using a stronger magnet.



NOR000249A

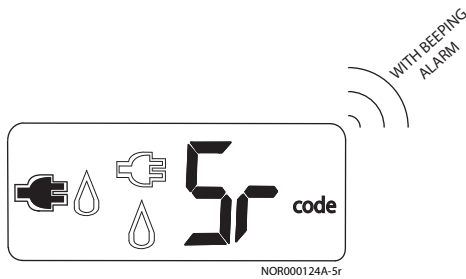
**Fig. 16 - Magnet position**



- Once the lockout state has been cleared, the red light of the TMC will turn off.
- If the refrigerator is not on, turn it on to further validate the TMC configuration.



## Sr



### Meaning:

The Power Board detected an internal fault. This fault can be reset by powering the refrigerator OFF and back ON. Should this fault continue to be displayed after being reset, the Power Board should be replaced. This fault can be displayed in ANY MODE.

### Verify:

- Igniter Spark Sense electrode is not touching the burner (shorted to ground).
- Wire from P1-10 (12VDC out to gas valve) is not shorted to ground.
  - For example, if the wire were to be pinched somewhere and the insulation covering torn, this would allow the bare wire to short to ground and this fault will be displayed.
- If the above steps check good and this error continues, replace the power board.

## Lo dc without alarm



### Meaning:

The Power Board has determined the DC input voltage is less than 10.5 VDC. Anytime the DC input voltage falls below 10.5 VDC and the low DC voltage fault is displayed the divider, perimeter, and flapper heaters are turned OFF. This fault can be displayed in ANY MODE. This fault will be cleared and the divider, perimeter, and flapper heaters will be turned back ON when the DC input voltage is  $\geq 11.5$ VDC.

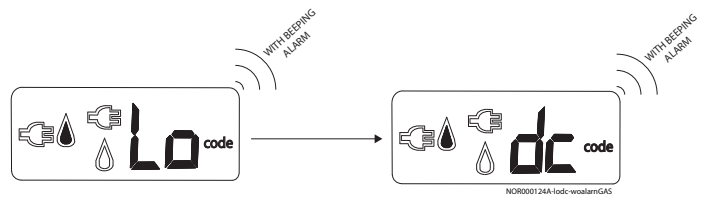
### Verify:

- That the battery charging equipment of the vehicle is operational.
- That the AC/DC converter is operational (if applicable).
- If voltage is within range, replace power board.

**NOTICE**

**Remember** that the fault can not be cleared until the DC input voltage is  $\geq 11.5$ VDC.

## Lo dc without alarm while in GAS Mode



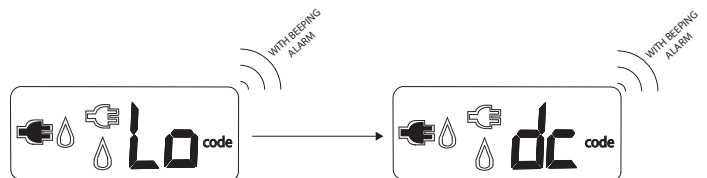
### Meaning:

The refrigerator attempted to ignite or re-ignite the burner when the DC input voltage was less than 10.0 VDC. The gas valve/igniter outputs are inhibited when there is a call for cooling and the DC voltage is less than 10.0 VDC. Should there be a call for cooling while the DC input voltage is greater than 10.0 VDC and the DC input voltage then falls below 10.0 VDC, the gas valve will remain energized and no fault will be displayed. This fault will automatically reset and the gas valve/igniter outputs will be allowed to operate once the DC input voltage is  $> 10.5$  VDC. This fault can only be displayed in the Auto and Manual GAS modes.

### Verify:

- That the battery charging equipment of the vehicle is operational.
- That the AC/DC converter is operational (if applicable).
- Contact Customer Service for further instructions.

## Lo dc with alarm



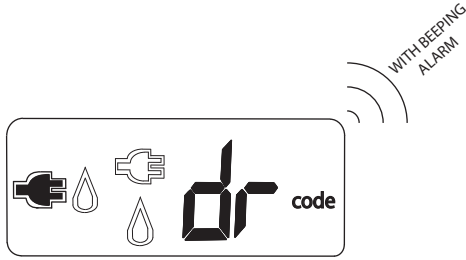
### Meaning:

The DC voltage to the refrigerator is less than 8.5 volts DC. All outputs are inhibited. This fault will automatically reset and outputs will be allowed to operate once the DC input voltage rises above 9.0 VDC. This fault can be displayed in ANY MODE.

### Verify:

- That the battery charging equipment of the vehicle is operational.
- That the AC/DC converter is operational (if applicable).
- If voltage is within range, replace power board.

**dr**



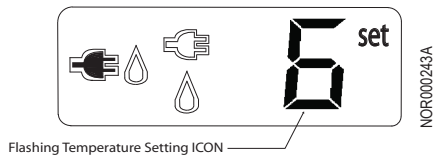
**Meaning:**

This fault indicates the optical display board has sensed that one or both of the fresh food doors have been open for more than 2-minutes. If this fault is displayed, the fresh food interior light will automatically be turned off. Once both doors are closed, the fault code will be cleared and the interior light will be allowed to operate. This fault can be displayed in any mode of operation.

**Verify:**

- Both fresh food doors are latching when closed. Adjust the strike plate if needed.
- Both latches are operating correctly. Fix or replace handle latch if necessary.
- Both doors are aligned correctly. Align doors if necessary.
- Both doors are not damaged or warped. Replace door if necessary.
- Light switches turn off light when held closed. If not, replace switch.
- Check for worn hinge bushings. Replace if necessary.
- Check for bent bottom hinges. Replace if necessary.

**Flashing temperature setting icon**



A Flashing Temperature Display means the electronic controls have sensed the fin thermistor to be inoperable. This fault is only displayed while the optical display is “awake.” To “wake” the display press and release either the Mode or Temp Set buttons. If there is a problem sensed with the thermistor the temperature setting icon will flash ON and OFF. After 10-seconds the control will revert back to the “sleep” mode. This fault can be displayed in ANY MODE.

Should the thermistor be sensed inoperable the electronic controls will ignore the thermistor and revert to a BOS mode (Backup Operating System). The BOS mode is an electronically controlled duty cycle that allows the refrigerator to continue operating until such time the thermistor can be repaired or replaced.

This duty cycle will maintain refrigerator cooling by controlling the length of time the heat source outputs (AC heater and propane gas burner) are energized. The duty cycle, or length of time the cooling cycle is regulated, can be manually controlled via the TEMP SET button. When a colder temperature is desired, changing the temperature setting to the next “colder” setting will provide additional cooling by lengthening the cooling cycle. For example, if the temperature setting is set to 5, adjusting the temperature setting to the next colder setting of 6 will lengthen the cooling cycle. When a warmer temperature is desired, changing the temperature setting to a warmer setting shortens the cooling cycle. For example, if the temperature setting is set to 4, lowering the setting to 3 will shorten the cooling cycle.

**Verify:**

- The fresh food fin thermistor is plugged in and that the connections are not dirty or broken.
- Thermistor resistance (Check resistance at thermistor connector with thermistor packed in ice bath).

Temperature* (°F)	Resistance* (k Ω)
85	8.1 - 9.0
80	9.1 - 10.0
75	10.1 - 11.0
70	11.1 - 12.0
60	12.1 - 13.0
50	15.5 - 16.5
40	22.5 - 23.5
35	24.5 - 25.5
33	28.5 - 29.5
32	30.0 - 32.0
* Approximate values	



- An alternate method would be to use an infrared gun to measure the fin temperature. Then compare that temperature with the temperature indicated on Diagnostic Screen #3. The temperature difference should be 6° F or less. If not, thermistor is bad.

## Diagnostic Mode

The diagnostic mode is a tool incorporated within the controls and can be accessed via the optical display. This tool is designed to assist in verifying temperature, inputs, outputs, and to retrieve recorded faults stored by the controls by displaying the various information via the LCD. Ten (10) screens, each having a particular function, are used to display this information. For example, screen three (3) displays the fresh food fin thermistor temperature, and screens four (4) and five (5) display stored fault history.

The LCD utilizes a dual 7-segment display within the LCD. The screen number is displayed utilizing the left-side 7-segment display while inputs, outputs, and various fault related information is displayed utilizing individual segments of the right-side 7-segment display. These individual segments will be defined/explained under each of the individual screen descriptions to follow.

### Access Diagnostic Mode

1. Press and hold both the MODE and the Temperature Set buttons at the same time.
2. Release the MODE and the Temperature Set buttons as soon as screen  displays.
3. A few seconds later,  displays.

### Change Screens

To change screens, press and hold the MODE button until the next screen displays.

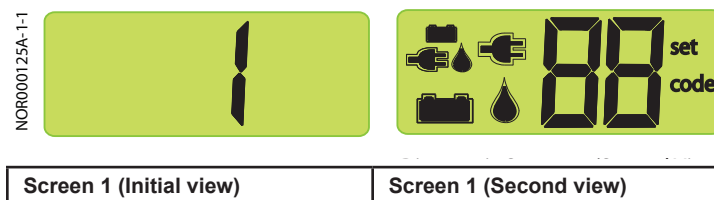
### Exit Diagnostic Mode

4. Press and hold both the MODE and the Temperature Set buttons at the same time.
5. Release the MODE and the Temperature Set buttons when the mode icons and temperature setting once again display.

Turning the refrigerator OFF then back ON also exits the Diagnostic Mode.

## Screens and Diagnostic Segments Information

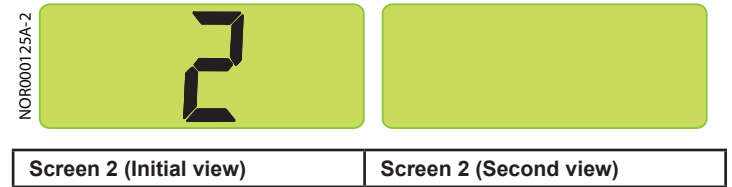
### Screen 1. All Diagnostic Icons ON



Screen 1 verifies all icons are operational by turning them on.

### Screen 2. All Diagnostic Icons OFF

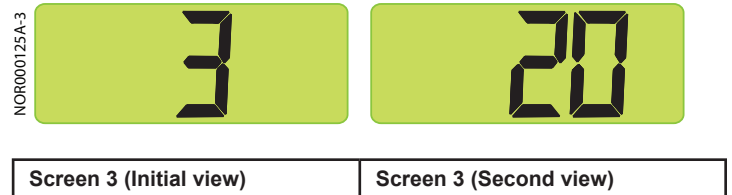
Press the MODE button to bring up screen 2.



Screen 2 verifies all icons are operational by turning them off

### Screen 3. Fresh Food Fin Temperature

Press the MODE button to bring up screen 3.

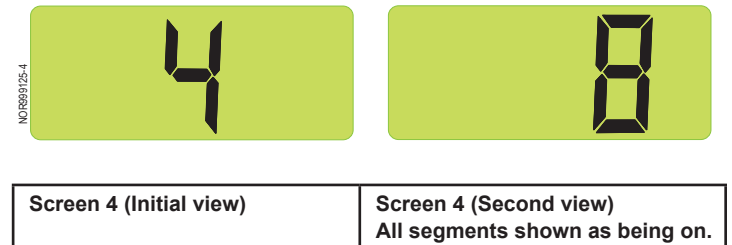


Screen 3 displays the actual fin temperature being sensed by the thermistor. ***This is not the fresh food cabinet air temperature.*** The example shows the fin temperature to be 20°F.

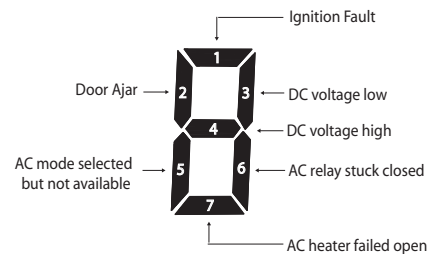
- If the thermistor is "open", the second view will show "00".
- If the thermistor is "shorted", the second view will show "99".

### Screen 4. Stored Fault History

Press the MODE button to bring up screen 4.



Screen 4 displays stored fault history using lighted LED segments. Refer to illustration below for fault history definitions of the individual LED segments. If a fault occurred, its assigned fault history



Diagnostic Mode, cont'd.

LED segment will be on.

Individual Segment Identification	
1	Ignition fault.
2	Door ajar.
3	DC voltage low.
4	DC voltage high.
5	AC mode selected but not available.
6	AC relay stuck closed.
7	AC heater failed open.

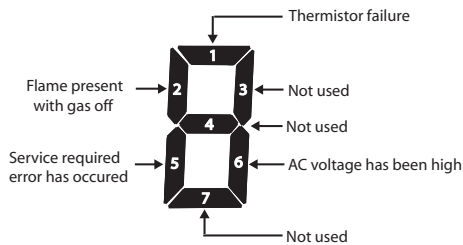
### Screen 5. Stored Fault History

Press the MODE button to bring up screen 5.

NOR000125A-5

Screen 5 (Initial view)	Screen 5 (Second view) All segments shown as being on
-------------------------	--

Screen 5 also displays stored fault history using lighted LED segments. Refer to illustration below for fault history definitions of the individual LED segments. **If a fault occurred, its assigned fault history LED segment will be on.**



Individual Segment Identification	
1	Thermistor failure.
2	Flame present with gas off.
3	Not used.
4	Not used.
5	Service required error has occurred.
6	AC voltage has been high.
7	Not used.

### Screen 6. Erasing Fault History

Press the MODE button to bring up screen 6.

NOR000125A-6

Screen 6 (Initial view)	Screen 6 (Second view)

Screen 6 provides a way to erase fault history from memory. To erase the fault history:

- Press and hold the Temperature Set button (approximately five (5) seconds) until “CL” shows on the screen.
- Once “CL” is displayed, release the Temperature Set button.
- Press and hold Temperature Set button (approximately five (5) seconds) until “Er” is displayed again. At this point, the fault history has been cleared on both Screen 4 and Screen 5.

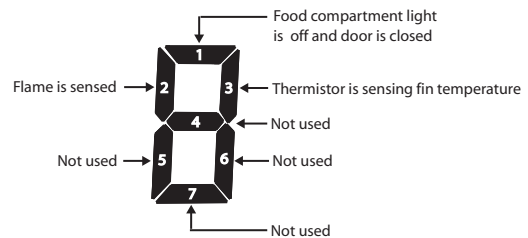
### Screen 7. Power Board Inputs

Press the MODE button to bring up screen 7.

NOR000125A-7

Screen 7 (Initial view)	Screen 7 (Second view) All segments shown as being on

Screen 7 displays “live” power board inputs using lighted LED segments. Refer to illustration below for “live” input definitions of the individual LED segments. **If a power board input is active or “live,” its assigned input LED segment will be on.**



Individual Segment Identification	
1	Food compartment light is off and door is closed.
2	Flame is sensed.
3	Thermistor is sensing fin temperature.
4	Not used.
5	Not used.
6	Not used.
7	Not used.

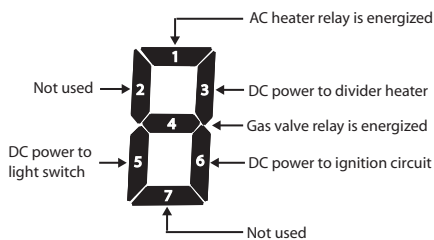
### Screen 8. Power Board Outputs

Press the MODE button to bring up screen 8.



Screen 8 (Initial view)	Screen 8 (Second view) All segments shown as being on
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Screen 8 displays “live” power board outputs using lighted LED segments. The following illustration provides definitions of the “live” outputs indicated by the individual LED segments. **If a power board output is active or “live,” its assigned output LED segment will be on.**



Individual Segment Identification	
1	AC heater relay is energized.
2	Not used.
3	DC power to divider heater.
4	Gas valve relay is energized.
5	DC power to light switch.
6	DC power to ignition circuit.
7	Not used.

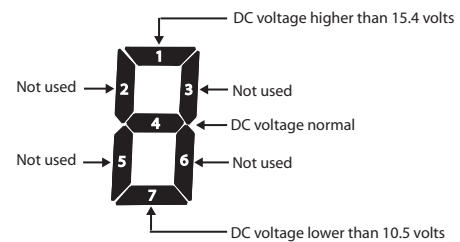
### Screen 9. Power Board DC Input Voltage Status

Press the MODE button to bring up screen 9.



Screen 9 (Initial view)	Screen 9 (Second view) All segments shown as being on
-------------------------	--

Screen 9 displays DC voltage status using lighted LED segments. Refer to illustration below for definitions of the individual LED segments. **If DC voltage at the power board is within normal range (10.5 to 15.4 VDC), LED segment 4 will be on.**



Individual Segment Identification	
1	DC voltage higher than 15.4 volts.
2	Not used.
3	Not used.
4	DC voltage normal.
5	Not used.
6	Not used.
7	DC voltage lower than 10.5 volts.

### Screen 0. Power Board AC Input Voltage Status

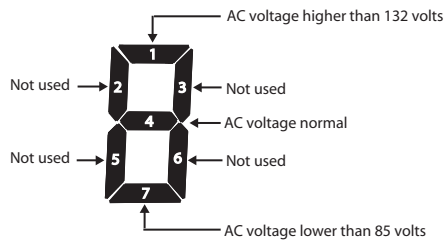
Press the MODE button to bring up screen 0.



Screen 0 (Initial view)	Screen 0 (Second view) All segments shown as being on
-------------------------	--

Screen 0 displays AC voltage status using lighted LED segments. Refer to illustration below for definitions of the individual LED segments.

## Diagnostic Mode, cont'd.



Individual Segment Identification	
1	AC voltage higher than 132 volts.
2	Not used.
3	Not used.
4	AC voltage normal.
5	Not used.
6	Not used.
7	AC voltage lower than 85 volts.

***If AC voltage at the power board is within normal range (108 to 132 VAC), LED segment 4 will be on.***

## Ice Maker

For information about ice maker operation and troubleshooting, please refer to the separate Ice Maker Service document.

# Wiring Diagram

	Description
PB	Power Board
DB	Display Board
CW	Cold Weather Kit
A	AC Heaters
B	Light
C	Thermistor
D	Gas Valve
E	Divider Heater
F	Perimeter Heater
G	Fresh Food Blower
H	Temperature Monitor Control
I	External Fans
J*	Ice Maker Water Line Heater
K*	Water Valve Heater
L*	Dispenser Water Line Heater
M*	Dispenser Water Valve Heater
N*	Water Valve
O*	Dispenser Light P.C.B.
P*	Dispenser Switch
Q	Temperature Switch
R*	Temperature Switch
S	Divider Heater Housing
T	Door Contacts
U	Flapper Heater
V	Flapper Housing
W	Door Switch
X	Igniter
Y	Freezer Blower
Z	Thermocouple
1	Fused Continuous 12 VDC
2	Switched 12 VDC
3	Communications
4	Display Ground
5	Auxiliary Ground
6	Auxiliary +12 VDC
7	Divider +12 VDC
8	Gas Valve +12 VDC
9	Internal Fans Ground
10	Internal Fans +12 VDC
11	Cooling Unit Heater
12	Temperature Switch
F1	5 Amp DC fuse
F2	8 Amp AC fuse
F3	3 Amp DC fuse
*	Optional

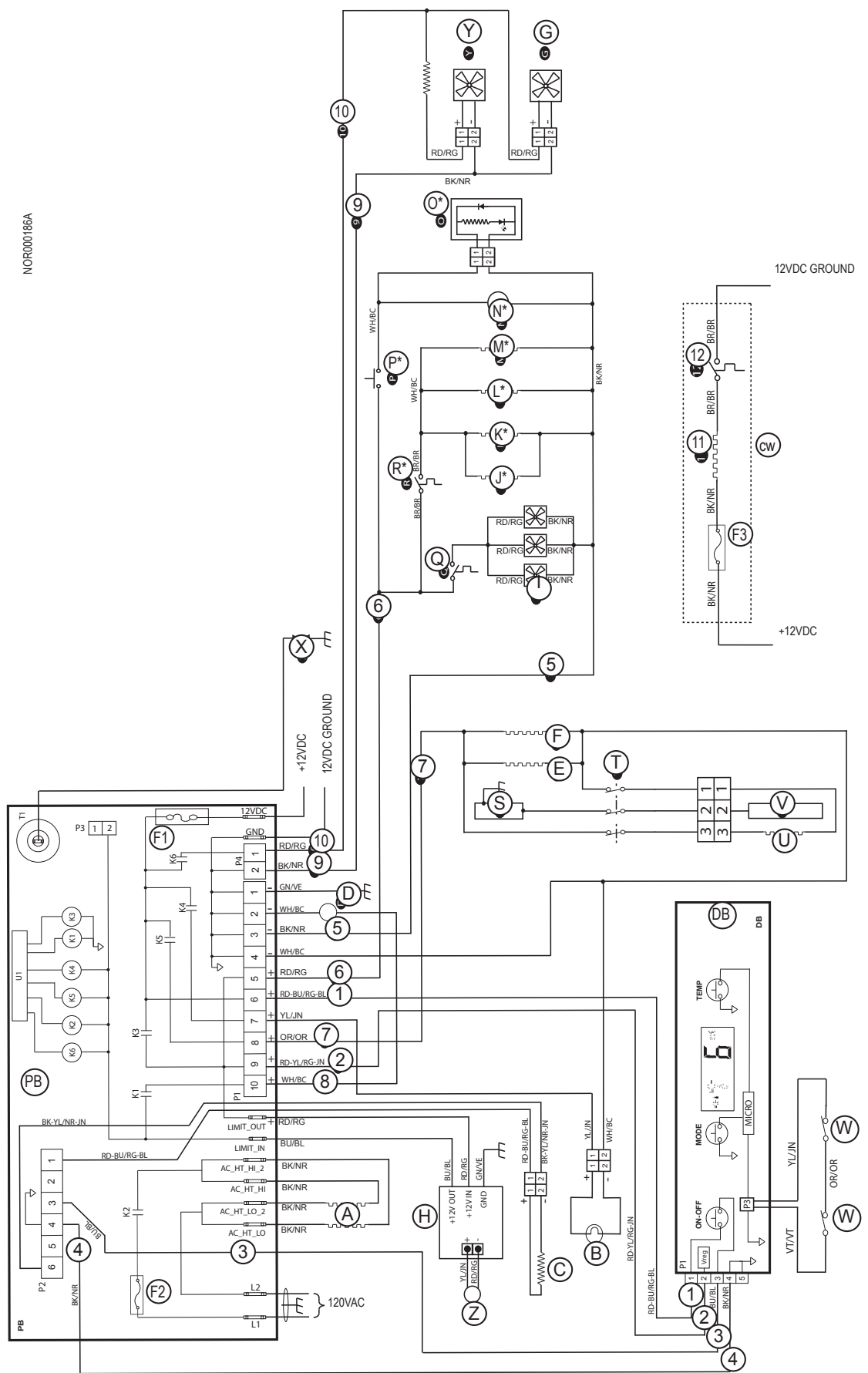


Fig. 17 - Wiring Diagram



# Wiring Pictorial

	Description
PB	Power Board
DB	Display Board
A	AC Heaters
B	Light
C	Thermistor
D	Gas Valve
E	Divider Heater
F	Perimeter Heater
G	Fresh Food Blower
H	Temperature Monitor Control
I	External Fans
J*	Ice Maker Water Line Heater
K*	Water Valve Heater
L*	Dispenser Water Line Heater
M*	Dispenser Water Valve Heater
N*	Water Valve
O*	Dispenser Light P.C.B.
P*	Dispenser Switch
Q	Temperature Switch
R*	Temperature Switch
S	Divider Heater Housing
T	Door Contacts
U	Flapper Heater
V	Flapper Housing
W	Door Switch
X	Igniter
Y	Freezer Blower
Z	Thermocouple
1	Fused Continuous 12 VDC
2	Switched 12 VDC
3	Communications
4	Display Ground
11	Cooling Unit Heater
12	Temperature Switch
F1	5 Amp DC fuse
F2	8 Amp AC fuse
F3	3 Amp DC fuse
*	Optional

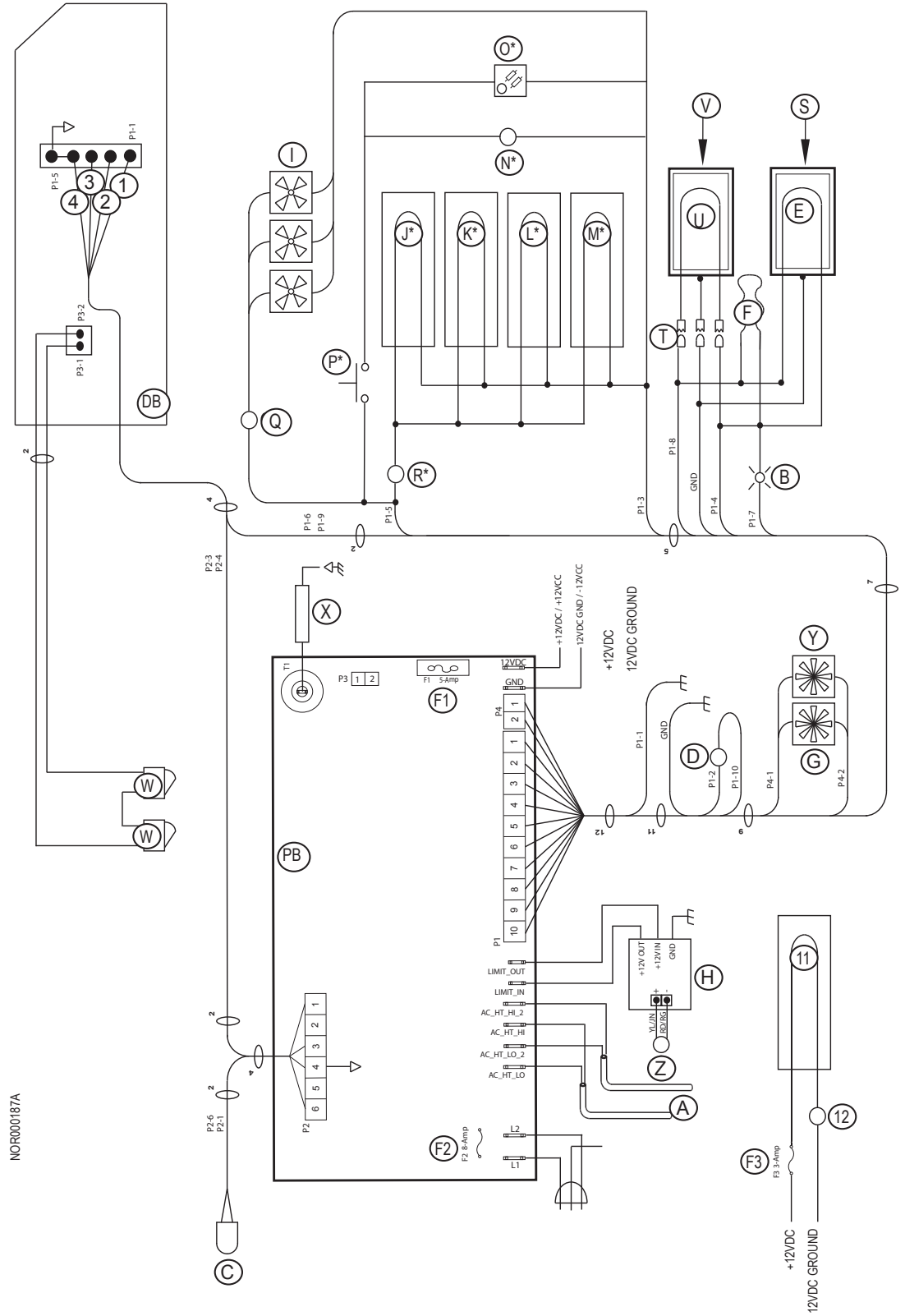


Fig. 18 - Wiring Pictorial

# 2118 Rear Wiring Views

A	Black wire - Ice maker to power cord hot (smooth).
B	Brown wire - Ice maker to water valve (red coil).
C	White wire - Ice maker to power cord neutral (ribbed).
D	Green wire - Ice maker to chassis ground (back panel).
E	Red wire - Top of fan thermostat to red "Y" (12 VDC out when thermostat is closed).
F	Red "Y" wires - 12 VDC from thermostat to fans.
G	Red wire - 12VDC from red "Y" to absorber fan.
H	Red wire - 12 VDC to fan thermostat.
J	Black "Y" - 12 VDC common to fans.
K	Black wire - 12 VDC common to fans.
L	Thermostat
M	Fan
O	From top of refrigerator.
P	Power board

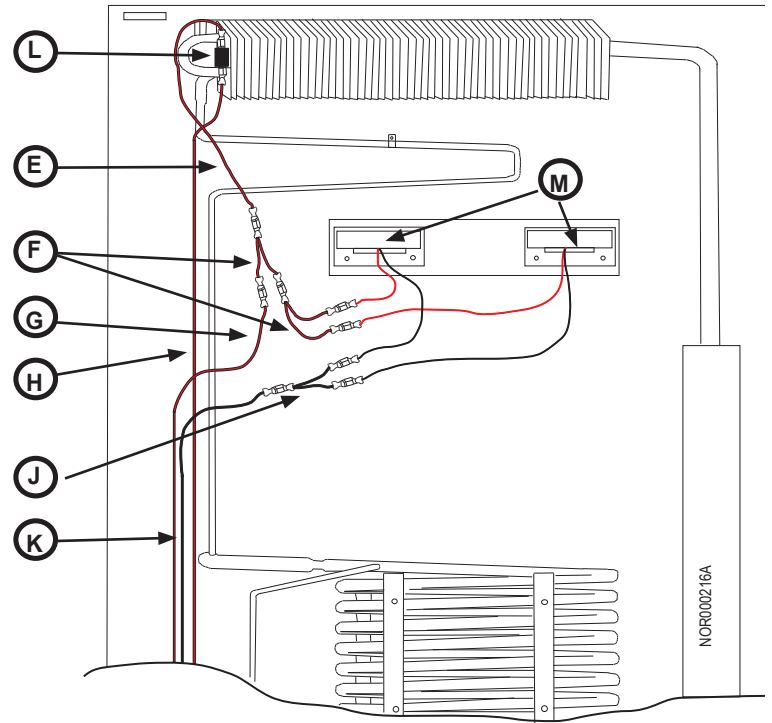


Fig. 20 - 2118 upper rear wiring

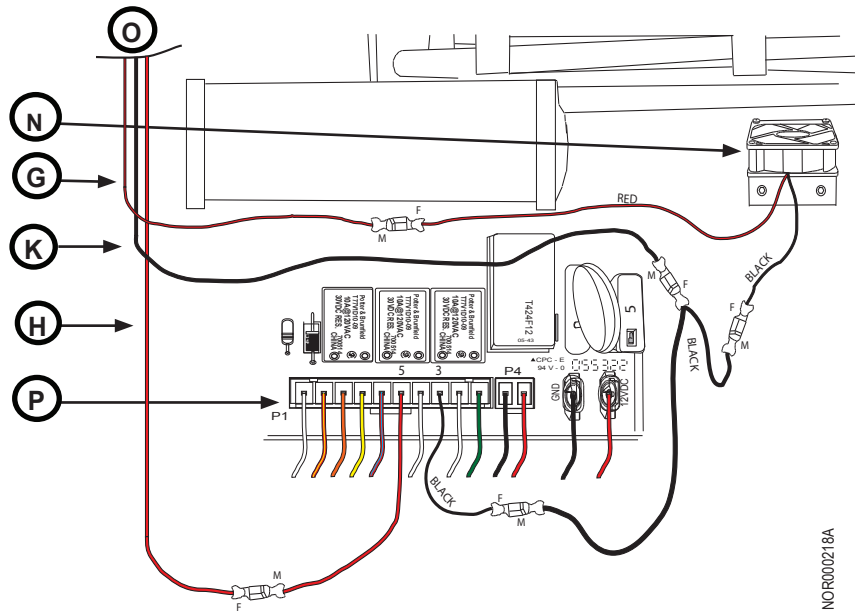


Fig. 21 - 2118 lower rear wiring

# 2118IM and 2118IMD Rear Wiring Views

A	Black wire - Ice maker to power cord hot (smooth).
B	Brown wire - Ice maker to water valve (red coil).
C	White wire - Ice maker to power cord neutral (ribbed).
D	Green wire - Ice maker to chassis ground (back panel).
G	Red wire - 12 VDC from red "Y" to absorber fan.
H	Red wire - 12 VDC to fan thermostat.
K	Black wire - 12 VDC common to fans.
L	Thermostat
N	Absorber fan
O	From top of refrigerator.
P	Power board
Q	Ice maker power cord (white)
R	Water in
S	Ice Maker water valve
T	Ice maker waterline heater

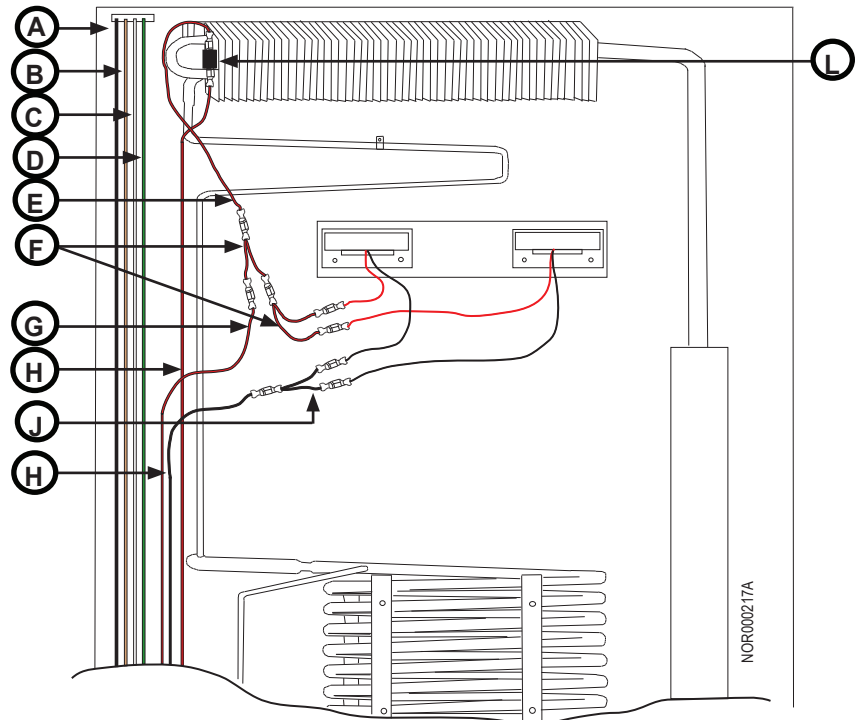


Fig. 22 - 2118IM and 2118IMD upper rear wiring

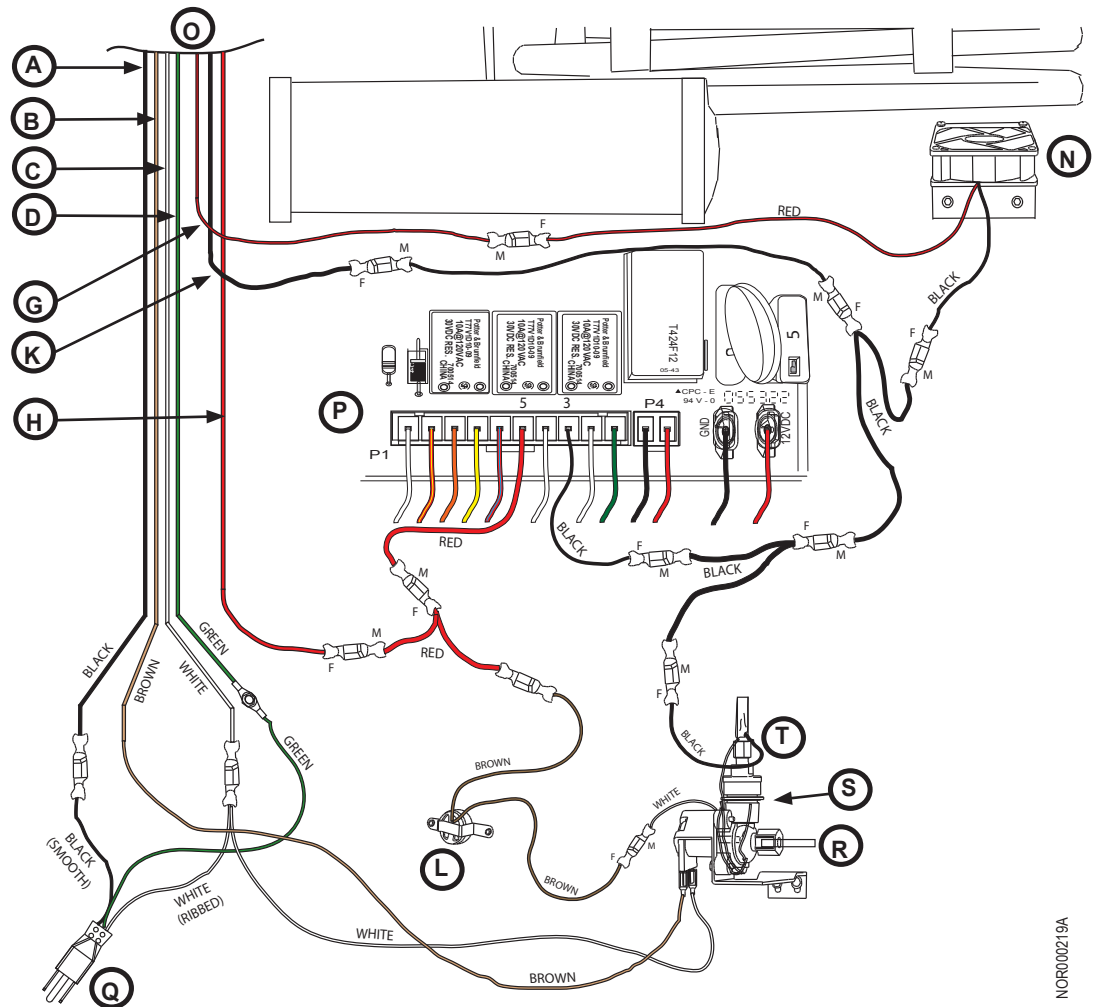


Fig. 23 - 2118IM lower rear wiring

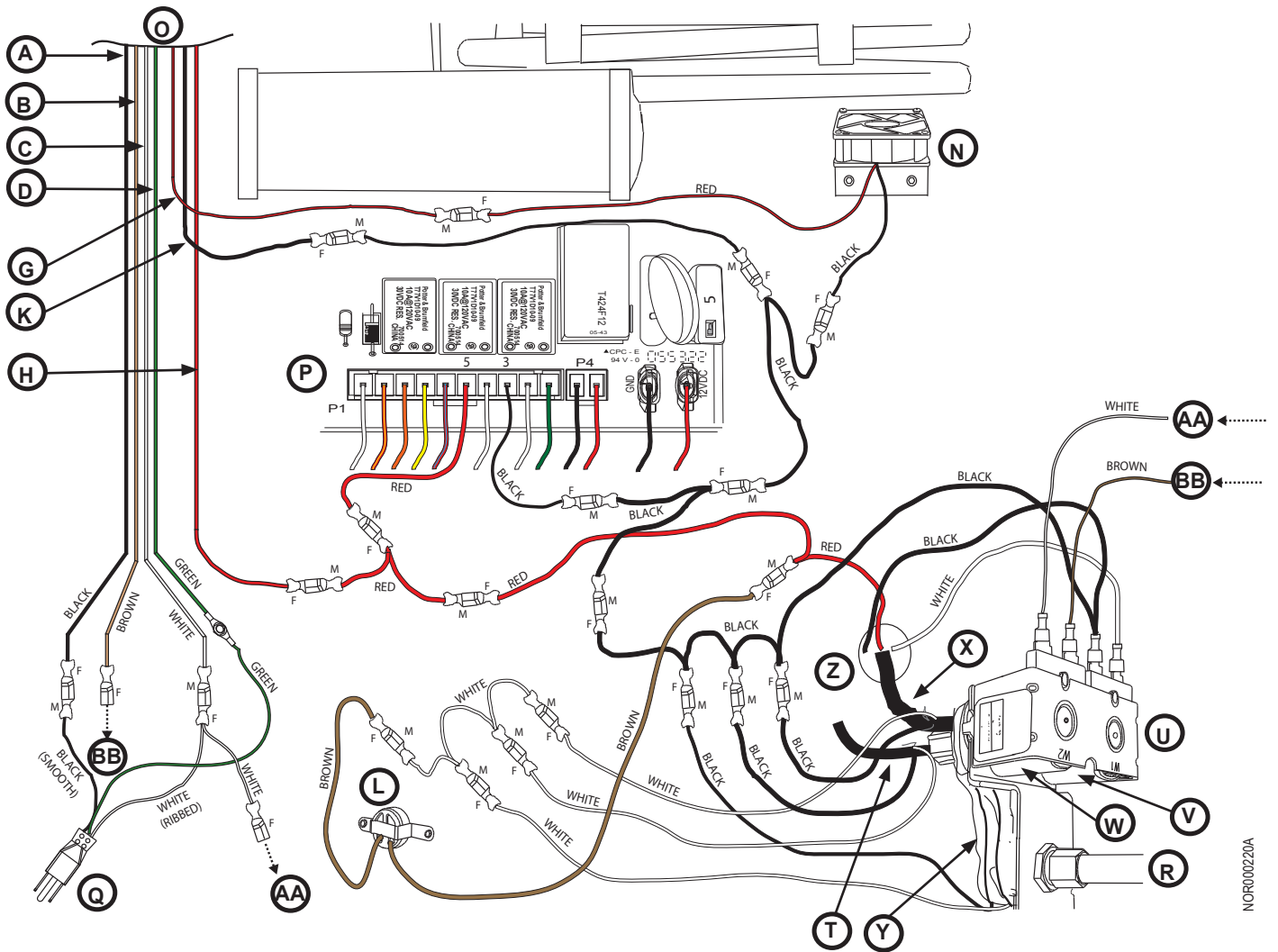


Fig. 24 - 2118IMD lower rear wiring

A	Black wire - Ice maker to power cord hot (smooth).
B	Brown wire - Ice maker to water valve (red coil).
C	White wire - Ice maker to power cord neutral (ribbed).
D	Green wire - Ice maker to chassis ground (back panel).
G	Red wire - 12 VDC from red "Y" to absorber fan.
H	Red wire - 12 VDC to fan thermostat.
K	Black wire - 12 VDC common to fans.
L	Thermostat
N	Absorber fan
O	From top of refrigerator.
P	Power board

Q	Ice maker power cord (white)
R	Water in
T	Ice maker waterline heater
U	Dispenser / ice maker water valve
V	Blue coil
W	Red coil
X	Dispenser waterline heater
Y	Water valve heater
Z	Grommet
AA	White wire - From ice maker power cord to water valve (red coil).
BB	Brown wire - From ice maker harness to water valve (red coil).

## Remove / Replace the Refrigerator



**The** rear of the refrigerator has sharp corners. To prevent cuts or abrasions when working on the refrigerator, be careful and wear cut resistant gloves.

### Remove the Refrigerator

1. Close the valve at the propane gas tanks(s) of the vehicle.



**To** avoid possible propane gas leaks, always use two (2) wrenches to loosen and tighten the propane gas supply lines at the refrigerator's manual shut off valve.

2. Open the lower intake vent and remove the propane gas supply line from the 3/8 inch male flare fitting of the refrigerator.
3. Unplug the AC power cord from the receptacle.
4. Remove the DC wiring from the battery or the converter of the vehicle.
5. Put a mark on the DC wires so that you can put them back in the correct location.
6. Remove the DC wires from the refrigerator.
7. Remove the screws which fasten the refrigerator to the floor.
8. Remove the door from the refrigerator.
9. Remove the screws which fasten the refrigerator to the wall.



**Very** heavy object. Do not attempt to remove without help. Unassisted attempts will likely cause bodily injury, property damage, or both.

10. Remove the refrigerator from the opening.

## Replace the Refrigerator



**Very** heavy object. Do not attempt to install without help. Unassisted attempts will likely cause bodily injury, property damage, or both.

1. Push the refrigerator completely into the enclosure.



**Make** sure the combustion seal is not broken, is completely around the refrigerator mounting flanges, and is between the mounting flanges and the wall of the enclosure. If the combustion seal is not complete, exhaust fumes can be present in the living area of the vehicle. The breathing of exhaust fumes can cause dizziness, nausea, and in extreme cases, death.

2. Remove the door from the refrigerator.
3. Put the screws through the mounting flange and into the wall.
4. Attach the door to the refrigerator.
5. Open the lower intake vent and put the screws through the refrigerator into the floor.



**To** avoid possible propane gas leaks, always use two (2) wrenches to loosen and tighten the propane gas supply lines at the refrigerator's manual shut off valve.

6. Attach the propane gas supply line to the 3/8 inch male flare fitting of the refrigerator.
7. Open the valve of the propane gas tank(s) of the vehicle.



**Do** not allow the leak checking solution to touch the electrical components. Many liquids are electrically conductive and can cause a shock hazard, electrical shorts, and in some cases, fire.

8. Using a leak checking solution, examine the gas supply line connections for leaks. No leaks are allowed.
9. Connect the DC wires from the refrigerator.
10. Connect the DC wiring to the battery or the converter.
11. Push the AC power cord into the receptacle.